

MASTER's THESIS

**Investigating the Somali Coastal Fisheries. A Case Study of Mogadishu Small-Scale
Fisheries Governance System.**

By

ABDIHAMID ALI ABDIRAHMAN

51220623

September 2022

Master's Thesis Presented to
Ritsumeikan Asia Pacific University
In Partial Fulfillment of the Requirements for the Degree of
Master of Asia Pacific Studies / International Cooperation & Policy

CERTIFICATION

I, **ABDIHAMID ALI ABDIRAHMAN** (Student ID **51220623**) hereby declare that the contents of this Master's Thesis are original and true, and have not been submitted at any other university or educational institution for the award of degree or diploma.

All the information derived from other published or unpublished sources has been cited and acknowledged appropriately.

ABDIHAMID ALI ABDIRAHMAN

2022/05/28

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful

This thesis is dedicated to my mother who only knew that I possessed promising potential, but did not get to see it flourishing. Her inspiration has been always the greatest source of strength in my life. She would have been very proud if she were alive today.

First and foremost, all praise is to Allah S.W.T the Almighty, for giving me the blessing, the strength, the chance and endurance to complete this Master`s thesis. I would like to acknowledge my indebtedness and render my warmest thanks to my supervisor, Prof JONES Thomas, whose friendly guidance, motivation and rich advice have been instrumental throughout all stages of my research project.

I would also like to thank all my respected joint seminar lecturers of Sustainability Science Division for their inspirations, extended discussions and valuable suggestions which have contributed greatly to the improvement of my thesis.

Completion of this research and the journey of my Master`s degree at large would have been all the more impossible were it not the prestigious JICA scholarship. Thank you for supporting my stay in Japan and my studies at Ritsumeikan Asia Pacific University (APU); and also, for the opportunity to become a global leader.

On the other hand, I would like to recognize my informants. Their identities cannot be disclosed, but I wish to underscore and show appreciation for their help and transparency during my research. Through your information, I managed to prepare an outstanding thesis without many hurdles.

Further, I extend my sincere gratitude to my friends and all loved ones for the kindness and helpful counsel. Thanks for the friendship, memories, and undying moral support throughout the course of this study.

Last, but not least, my deepest and heartfelt gratitude goes to Ali Abdirahman Ahmed, my father, who has taught me love of knowledge and being always with me in whatever I pursue. finally, I grant my special thanks to my family in general for their unqualified love, and exceptional encouragement, sense of humor, patience, hopefulness they provided me with. Without their guidance and dedication, this thesis would not have been possible. Thank you all for the strength you gave me. You are my ultimate role models. I love you all!

May God give the above-mentioned personalities with blessings and honor in their life.

TABLE OF CONTENTS

CERTIFICATION.....	II
ACKNOWLEDGMENT.....	III
TABLE OF CONTENTS.....	IV-VII
LIST OF TABLES.....	VIII
LIST OF FIGURES.....	VIII
LIST OF ABBREVIATIONS.....	IX
ABSTRACT.....	X-XI
CHAPTER I NTRODUCTION.....	1
1.1 Background	1
1.2 Statement of the Problem.....	3
1.3 Purpose of the Study	5
1.4 Scope of Study.....	5
1.41 Geographical	5
1.4.2 Demographic	6
1.5 Significance of the Study	6-7
1.6 Chapter Summary.....	7-8

CHAPTER 2 – LITERATURE REVIEW	9
2.0 Overview	9
2.1 Search Strategy.....	9
2.2 Empirical Evidence	9
2.2.1 Fishery Resources Management.....	9-10
2.2.2 Definition of Small-Scale Fisheries.....	11-13
2.2.3 Small-scale Fisheries Governance.....	13-15
2.2.4 Co-operative Governance of Small-Scale Fisheries.....	15-17
2.2.5 Small-Scale Fisheries Organizations in Africa.....	17-19
2.2.6 Policy and Governance of Small-Scale Fisheries in Somalia.....	18-19
2.2.7 Mogadishu Small-Scale Fisheries Governance.....	21-22
2.3 Theoretical Approach.....	22-23
2.4 Unresolved Issues, Gaps in the Literature and Conceptual Framework.....	25
2.5 Chapter Summary.....	25-26
CHAPTER 3 - RESEARCH METHODOLOGY AND DESIGN.....	27
3.0 Introduction.....	27
3.1 Study Area	27-28
3.1.1 Rationale for choosing the specific study area	28-29
3.2 Research Approach.....	29-30

3.3 Research Design.....	30
3.4 Study Population and Sample size.....	30-32
3.5 Tools of Data Collection.....	32
3.5.1 Data Collection Method.....	32
3.5.2 Primary Data Collection.....	32
3.6 Data Analysis.....	33
3.7 Limitations of the Study.....	33
3.8 Ethical Considerations.....	34
3.9 Chapter Summary.....	34
CHAPTER 4 - ANALYSIS AND DISCUSSION.....	35
4.0 Introduction.....	35
4.1 Findings.....	35
4.1.1 Application of Ostrom’s Design Principles.....	35-36
Principle 1A/B: Resource boundaries.....	43-45
Principle 2: Congruence with local conditions.....	45-47
Principle 3: Collective-choice arrangements.....	47-50
Principle 4: Monitoring.....	50-52
Principle 5: Graduated sanctions.....	52-53
Principle 6: Conflict-resolution mechanisms.....	54

Principle 7: Recognition of the right to organization.....	54-55
4.2 Chapter Summary.....	56
CHAPTER 5 - DISCUSSION.....	57
5.1 Challenges Facing Current Small-Scale Fisheries Governance.....	58
5.2 Governance Factors.....	59-60
5.3 Relationship between current governance and Ostrom’s design principle.....	60-61
5.4 Co-management in Mogadishu Small-Scale Fisheries.....	61-62
5.5 Gaps and Prospects.....	63
5.6 Role of Fish Cooperatives.....	65
5.7 Impact of Chinese Fishing Licensing Deal.....	66-68
5.8 Chapter Summary.....	68-69
CHAPTER 6 - CONCLUSION AND RECOMMENDATION.....	68
6.0 Introduction.....	68
6.1 Conclusion.....	70-71
6.2 Recommendations.....	72-73
REFERENCES.....	74-85
ANNEXES.....	86-87

LIST OF TABLES

Table 1. List and definitions of Ostrom’s design principles.....	24
Table 2. Sampling of respondents.....	31
Table 3. Survey results in relation to Ostrom’s design principles 1–7.....	37-42

LIST OF FIGURES

Figure 1. Aerial view of the geographical scope of the study area.....	6
Figure 2. Co-management institutional flow chart.....	16
Figure 3. Level of involvement of stakeholders.....	17
Figure 4. Map of the Western Indian Ocean region.....	19
Figure 5. Study Area.....	27
Figure 6. Photo of fishermen at Lido Beach.....	28
Figure 7. Potentials and obstacles surrounding small-scale fisheries co-operative management in Mogadishu.....	64

LIST OF ABBREVIATIONS

BRA – Benadir Regional Administration

CM- Co-management

DS – Design Principles

CPR- Common Pool Resources

EEZ-Exclusive Economic Zone

MM - Mogadishu Municipality

MFMR-Ministry of Fisheries and Marine Resources

FAO – Food and Agriculture Organization

FGS – Federal Government of Somalia

FMS – Federal Member States

NGOs - Non-Governmental Organizations

SFF - Small Scale Fisheries

SES- Socio-Ecological System

UNCLOS- United Nations Convention on the Law of the Sea

UNFSA- United Nations Fish Stock Agreement

ABSTRACT

With the unprecedented level of the world's marine fisheries deterioration and the unabated global demand for seafood products, there is growing fear for the health of not only for the seas but also the millions inhabiting the least or developing countries around the world as they continue to depend the oceans for their livelihood. Small-scale fisheries provide about 90% of world fisheries employment, source of nutritious food, and low environmentally stress compared to large industrial fishing. The sector provides means of livelihood for hundreds of fishers and processors in Somalia, and women largely engaged in post-capture activities. The small-scale fisheries are recognized for their limited capital, labor-intensive, recurring conflicts, remote landing sites, and post-harvest challenges such as lack or poor storage systems, spoilage and discard in Somalia at large and in particular, Mogadishu. The present condition of the sector is managed under an ill-defined management practice. This type of management system constitutes significant control of formal control but is contributing to poor utilization of the fisheries resources, due to the use of destructive fishing techniques. Studies on the use of the small-scale fishery resources through any form of governance style in Mogadishu, and in Somalia in general are very limited or inexistent.

The sample population for the study was identified through non-probability technique, especially purposive sampling. Data was collected using online semi-structured interviews from 9 participants in two fishing communities-Hamar Weyne and Abdiaziz districts of Mogadishu. From the findings, the study concludes that factors influencing the governance system in practice include limited legal arrangements, poor enforcement capacity, undefined co-management style and weak fishers' participating in the policy making and decision making processes. This research explored the small-scale fisheries governance by applying the Ostrom's 8 design Principles to assess the characteristics of the existing governance for the purpose of acquiring insights to improve the management of the resource units along with its community. I claim that enhanced governance under modern co-management mode of governance cannot be realized without comprehensive grasp of Mogadishu's small-scale governing system, the resource systems that are being governed, and their interactions.

More precisely, the functioning management system, seven out of the eight design principles applied, they reveal the following trend: a) resource and user boundaries are partially met but only through the written legal aspect; b) congruence between benefits and costs are not met at all; c) collective choice arrangements is not fulfilled as users have no means to engage in procedures for establishing own rules; d) monitoring and enforcement principle is partially met with some form occasional resource conditions monitoring enforcement and specific mention of monitoring SSF users; e) graduated sanctions principle is not accordingly addressed; f) conflict resolution mechanisms is perhaps the only element that is accordingly met but only on community management level since cases rarely referred to the concerned formal authorities; and g) minimal recognition of rights' principle is evidently not tackled but the local users facilitate inputs to respective government bodies rather than establish rules.

Generally, findings of the fisheries in Mogadishu using Ostrom's principles for guidance reveal the challenges towards effective co-management in resource system, resource users, and governance system areas respectively. Problems contain long-standing distrust and dispute between small-scale fishers and government institutions, and between small and large-scale fisheries (including licensed industrial fishing fleets). Even so, increasing initiatives entailing coordinated actions to management indicate potential to enhance compliance with several principles. Disadvantages of employing Ostrom's design principles for the study show lack of poor correlation in communities governed under post-conflict reconstruction management realities with significant external drivers. However, the needed modern co-management or self-organized governance system should embrace rules that empower not only the fisherfolks but also protect fisheries resources.

Keywords: *Common-pool-resources; Co-management; Governance; Social-ecological systems; Small-scale fisheries; Ostrom design principles.*

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.0 INTRODUCTION

1.1 Background

Marine fishery resources are increasingly becoming essential component of community lives inhabiting almost all of littoral nations around the world and make significant contributions to economic growth and social well-being of those nations. The majority of global population is concentrated in coastal areas and they subsequently sustain livelihood from the array of ecosystem functions and services provided by the marine fisheries. Globally, the fisheries sector sustains livelihoods of more than half a billion people and serves as the main animal protein source for over one billion people, of which 90 percent of these people hail from developing countries. This trend is reflected in the past 40 years dramatic increase of world's marine capture fisheries, from 18.5 million t in 1950 to 141.6 million t in 2008 of which about 60 percent of is caught by developing countries (FAO, 2009). This apparent production pace among the coastal communities across the nations is propelled by the small-scale fisheries; in which figures indicate around 30 million fishers engaged in small scale fisheries throughout the world (Coates, 2002).

According to FAO (2007), in a rapidly developing world, the important contribution of small scale fisheries to coastal communities is not merely discernible in the provision of essential livelihood, food security and nutritional benefits but the direct employment advantages from the myriad fishing activities- gear making, harvesting, processing, and marketing which in turn positively promotes financial well-being of the poorly developed communities left with limited or no alternative source to generate livelihood. With these clear coastal livelihoods intertwined with fishery resources coupled with growing human population, devising management system that counters livelihood disruptions and long-term changes to the sustainability and health of the coastal and marine ecosystems is paramount importance (Salafsky & Wollenberg, 2000).

In Africa, millions of people overwhelmingly rely on the rich marine natural resources, species and ecosystem services to anchor their livelihoods while its small scale fisheries play pivotal role in supporting food security (Kupaza et al., 2015). For Somalia, the nascent fisheries sector

locally plays a vibrant role in tackling food insufficiency, provision of livelihood and human nutrition; and has great potentials for export earnings and contributes about 2.4% GDP to the national economy (Persson & Karlsson, 2019).

Fishing as a livelihood and domestic fresh fish consumption per se is constrained to coastal domain because of traditionally red meat eating culture and weak infrastructure that results access difficulties for fish to the wider population. Small-scale or artisanal fisheries make an important contribution to food security, sustainable livelihoods and poverty alleviation of coastal areas; and due to this fact, both government and international community are scaling up to maximize the potentials of sector to secure long-term economic growth (Roberts et al., 2019). Despite this mixed sense, fisher folk is still regarded as one of the most backward sections in our society and information pertaining the management systems in place is insufficiently developed even those that derive sustenance from the coast of Mogadishu-the capital of Somalia.

In the era of increasing demand for seafood and deteriorating fish stocks, resource managers serve important responsibilities in ensuring the sustainability of stocks in the long run. Fisheries comprise various complex biological, physical, and social components, however, traditional fisheries governance long inclined on structures centering on inputs, (growth focus) and outputs (such catch and mortality level). Contemporary models of fisheries governance integrate principles of systems experiments that fit to analyzing complex and dynamic processes such as fisheries that embrace both biophysical and social systems.

Small scale fisheries, comprised of small groups of people who harvest fish with or without permits either for subsistence or marketing are important part of the fisheries sector and economy in most coastal countries around the world. Ideally, small scale fisheries employ non-mechanized tools and often use manually operated fishing gears and in some cases venture fishing without navigational devices and electronic fish finding equipment (Tieze et, al. 2000; Mathew, 2001; FAO, 2005). Wherefore, small-scale fisheries are increasingly seen as key contributors to incomes and livelihoods of millions of people around the world; the total production from small-scale fisheries sector is close to matching that of the large-scale fisheries capacity (Bene et al., 2007). It is difficult to manage and maintain fisheries at large due to the complex, diverse and

dynamic nature of the sector (Mikalsen, Hernes & Jentoft, 2007). Successful fisheries management considers three factors; the resource itself, the resource consumers (fisheries communities) and the resource management authorities (McClanahan & Castilla 2007). As a result of these developments, various management approaches appeared; but traditional or conventional system remained unchallenged.

With the increasing population, combined with the enormous stress subjected to the fishery resources, the sector is challenged to output sustainable quantity of fish and therefore becoming a particular management challenge for fisheries authorities around the world on a similar scale and so too Somalia's small-scale fishing communities. For that matter, it became apparent to fisheries management practitioners that not only continuing to rely on conventional management schemes that depend on government enforcement, but the need to embrace diversified practices of management approaches, whereby responsibility is exercised between formal institutions and the community of local fishers (Jentoft & Chuenpagdee, 2009).

1.2 STATEMENT OF THE PROBLEM

It is widely acknowledged that human pressures are to blame for deterioration in global marine capture efforts (Stobutzki, Silvestre, and Garces 2006; Béné, Hersoug, and Allison 2010; Pomeroy and Andrew 2011; Cinner et al. 2013). In Somalia, for instance, FAO has identified poor management as one of the significant causes of poor fisheries system, along with poor data and the weak legal arrangements (FAO, 2014). Therefore, it is a reference key way to address the problem is through co-management.

However, implementing proper cooperative management is challenging in developing countries due to the ecological and social disparity (Wallner-Hahn et al., 2016). Socioecological systems (SES) of SSF (commons) need management practice that accepts local realities and considers not only the resource systems and its units, but also key stakeholders-fisherfolks. Conventional governance style that depend on formal control is presently incompatible with the changing dynamics of resource systems due to its inconsistency with the scale at which power is executed, rules are created, and resources are utilized (McConney & Charles 2010; Jentoft & Chuenpagdee, 2015).

Marine resources are finite resource systems and for this reason, it is important for the fishery stakeholders to work jointly to enhance management practices. In line with this dilemma, distinguished authors of common pool resources suggest application of co-management practice to solve SSF complexities (Berkes, 2003). Co-management clearly outlines the essence of needed mechanism for collaboration between state, NGO and fishermen including benefits of SSF's involvement into the decision-making process. It is stated that such practice can improve more community-driven and sustained human-environment interactions (Brondizio, Ostrom, & Young, 2009).

Sustainable utilisation of the small scale fisheries in Somalia is largely facing challenges especially, Mogadishu ones. Although fishing boats are licensed, they operate as an open-access resource system. This condition is known as common property resource where access is unrestricted. Ostrom (2009) argues that this state contributes to high dependency on the resources leading to high extractability of the resource and low excludability of users. In fact, this open-access regime has already increased participation in the small scale fisheries with the coastal communities becoming more dependent on the resources for their livelihoods.

It is believed that the sector is also managed under total government authority with limited self-organization of informal management system headed by fish cooperatives. This form of management has not been properly studied and its existence fails the sustainability of the sector. This can create unsustainable fishing practices and conflict among users. This trend of open resource systems often collapse (Hardin, 1968); but only when there is poor governance or lack of proper rules for their use (Ostrom, 2009). As such, one of the ideally established approaches that comprehensively measure a given governance system and the related elements is the Elinor Ostrom's 8 Design Principles Framework- applied and constructed upon by several scholars researching the systems of common pool resources (Ostrom, 2009). Applying this conceptual framework and supported with finding from semi-structured interviews, I qualitatively analyze and present the status of Mogadishu small-scale fisheries status to examine whether the elements of the principles contribute to effective small-scale fishery governance.

The study assesses management processes by examining the degree to which local governance management practices have been met following the realization of the importance of the sector.

For this reason, addressing the governance and management aspect of the Mogadishu small-scale fisheries can contribute to implementing resource sustainability, economic profit, and social harmony.

1.3 PURPOSE OF THE STUDY

Using Mogadishu as a case study, the following study presents a contemporary understanding of small-scale fisheries through analysis of present condition of management arrangements of the sector and underscores the degree to which the fishers can actually shape fisheries management processes, and whether or current governance of SSF is in fact an appropriate option. The research embarks uncovering process by tackling the following questions:

- I. How are the small-scale fisheries in Mogadishu governed?
- II. What factors of management systems are influencing the governance of SSF?
- III. How do local cooperatives moderate the governance of SSF fishery?

This researcher examines small-scale fisheries related to institutional and management issues with a focus on the districts of Abdiiaziz and Hamarweyne in Mogadishu to depict a more comprehensive picture of SSF in Somalia. It analyzes both institutional dynamics and management using Ostrom's (1990) design principles for managing commons as a diagnostic framework to highlight the governance effectiveness with a particular focus on the principles of Clearly defined user and resource boundaries, congruence between rules and local conditions, proportional equivalence between costs (provision rules) and benefits (appropriation rules), monitoring and graduated sanctions.

1.4 SCOPE OF STUDY

1.4.1 Geographical Scope of the Study Area

The study will be carried out in Mogadishu Somalia. Mogadishu is chosen because of its significance as the capital city with the highest fishery based livelihood activities in Somalia, thus, it will be the suitable place to learn the nature and systems of fishery resources management to highlight the complexities and issues surrounding the fishery process, to assess the effects of fishery resources to livelihood of fishing communities while dissecting the challenges facing fishery resources management to achieve stable and vibrant fishery

community. It is from Mogadishu that this research will get its study participants too.

1.4.2 Demographic Scope of the Study Area

The research will include Ministry of Fisheries and Marine resources, Mogadishu Municipality officials, members of fishery cooperatives, fishermen, and fish traders. The choice is determined by the fact that many of those chosen are already directly or indirectly part of the fishery management spheres. It is the population that will also respond to the survey and the interviews.

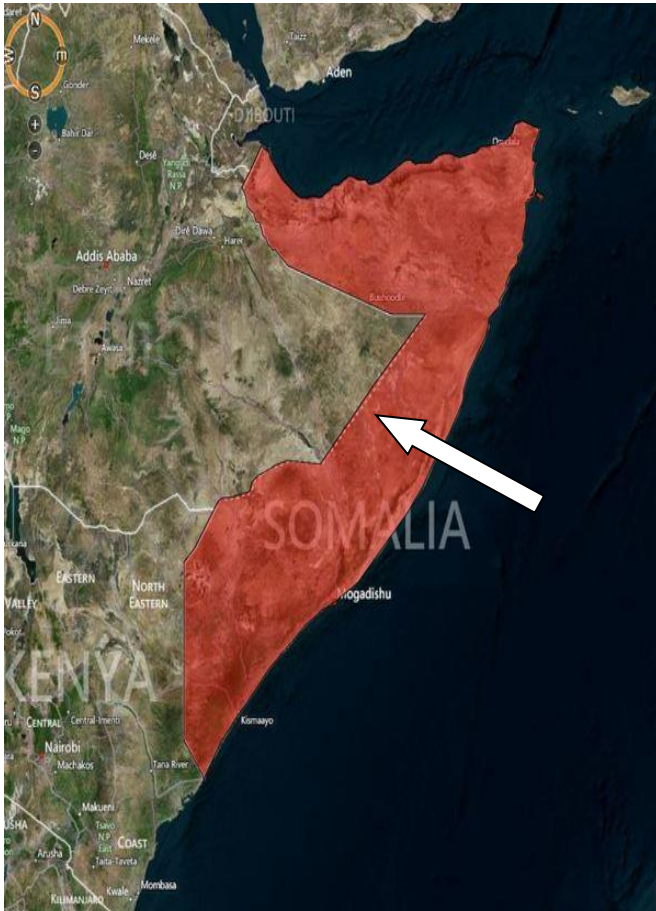


Figure 1: Aerial view of the geographical scope of the study area (Source: Google Earth)

1.5 SIGNIFICANCE OF THE STUDY

This study is aimed at generating information that will be beneficial for small-scale fisheries sector of Somalia, in particular for Mogadishu fisheries to initiate some unique characteristic that provide governance approach that is participatory for all stakeholders, and effective management of the fishery resource in general. This study will be significant because it increases the information about the kind of small-scale fisheries management that could maintain good

governance in the sector; especially focusing on the effective management style shaping governance of the small-scale fisheries sector. It's expected to provide valuable support and new enlightenment that is supportive for agencies affiliated in the sector's governance and ensuring the long-term sustainability of the sector. Also, this study will assist concerned government institutions that need to formulate or implement programs that are related with improving the vibrancy of the sector. Finally, it will also generate information that will be beneficial to researchers, students and other academicians interested in small-scale fisheries governance and effective management practice.

1.6 Summary of the Chapter

Fish is very important to humans. In this dimension, small- scale fisheries in particular account for more than half of the inland and marine fish catch (FAO, 2012). In developing world, considerable people draw their livelihood from the sector on different levels. In spite of the obvious benefits, the sector is faced with anthropological challenges grounded in poor management practice resulting from open resource system nature for many parts around the world.

Researchers on natural resources management present a number of frameworks of reference that entail effective and durable management of common resources. The research applied Ostrom's (1990) eight design principles framework which is one of the key method employed in order to examine successful common's governance. Over the years, empirical studies have shown the applicability and effectiveness of the Ostrom design principles for a range of common-pool resources. These studies have shown the applicability and effectiveness of the Ostrom design principles for a range of common-pool resources. Due to the present condition of SSF in Mogadishu, this framework can accordingly diagnose and expose the institutional governance and in turn proof the relevance of the design principles for the research as it uses complimentary diagnostic approach and more specific social learning principles than mutually exclusive dimension.

Though this framework is supported by several empirical studies, there has also been weaknesses proposed that these design principles cannot widely be applied to all settings or that they may be ideal only to specific types of common pool resources, or only some principles can be fit for a given condition (Cinner, 2012). Nonetheless, Sine the implementation of SSF governance in Somalia has been poor and none of Ostrom design principles have been adopted, the use of the DP could improve SSF governance in Mogadishu, and in Somalia at large.

The fisheries sector of Somalia, like any other sector, is recovering from years of civil unrest. It is capable of making contribution significant to the development of the country in large. In this regard, it is essential to gauge realities surrounding this open resource realm such as governance practices capable to manage physical and human assets, along with institutional and conducive political environment that ensures sustainable management of the resources. Only in understanding present condition of the sector can ensure the health of the resource systems while also highlighting opportunities for a successful management practice drawn from cases matching Mogadishu's scale in terms of the resource consumers (fishermen) and the resource management authorities.

CHAPTER TWO

LITERATURE VIEW

2.0 OVERVIEW

This chapter provides previous studies and the theoretical framework that was employed in the research. The objective of the chapter is to concentrate on the linkage of the relevant findings, mainly on the fisheries management and fisheries-based livelihood of coastal communities, so as to identify the gap in the literature. The purpose of finding the literature gap was settled on the objectives of the study that contributes to knowledge and other relevant interests. Further, the main variables from previous findings were utilized to shape the design of the conceptual framework, which formed the hypotheses in order to accomplish the objectives of the research.

2.1 SEARCH STRATEGY

The search quest for this study began with establishing a literature review component outline, which grounded the keywords used in search databases. Keywords included; fisheries, coastal communities, small-scale fisheries, co-management, and fisheries governance. The ProQuest, EBSCOHOST, Science Direct and SAGE databases were searched while Google Scholar was also employed to extensively look for information. Sources of data comprised peer-reviewed journal articles, books, relevant government materials, theses, and dissertations. Over 100 sources, dating from late 1970s to the present, were acquired with relevant information. The vast majority were published within the last 20 years. Older sources were added to enrich the reader with the perception of the extensive and history of the theme. Mendeley was utilized to support detect duplicate sources. Lastly, other important materials accessed, as listed in the bibliography section of this thesis, were selected as vital benchmark sources for this chapter.

2.2 EMPIRICAL EVIDENCE FOR THE RESEARCH THEME

2.2.1 Fishery Resources Management

Marine fishery resources have a comprehensive definition and, in simple terms, refer to all animals that primarily live aquatic environments and are very essential to the well-being and economy of mankind, in particular coastal dwellers; as it provides them with sources of income, employment opportunities and many more (Gartside & Kirkegaard, 2009). Fishery resources domain has in recent years become socio-economically important aspect of coastal states around

the world. About 260 million directly or indirectly find employment from the fishery related activities. This sector contributes an average of 17 kg per person in a year of the required animal protein globally and an annual contribution of USD \$100 billion to global trade through foreign exchange, thus making the world's most traded food commodities, with 38% of all recorded fishery production traded across countries generated from the sector (FAO 2011).

Fisheries are complex systems that are publicly owned resources and impacted by primarily the behavior of various groups involved in its capture. Other human activities that are managed within different institutional settings such as energy generation, pollution, coastal development etc have direct impact on the fishery resources (Williamson, 1985). Fishing the oceans or capturing fish for whatever reason is a significant human activity and it begun to explode alarmingly from 1950s, with fishing grounds growth and expansion to new fishing areas to a point where 10% of marine production was allocated to support fisheries after sustained exploitation (Swartz *et al.*, 2010). Contrary to the notion of fishery resources' inexhaustible nature, marine fishery resources differ from other renewable resources in the sense fishery resources may be jeopardized once the yield massively outpaces a level of sustainability, and sustaining the rate of harvesting effort will significantly affect the future capacity of exploitation by its negative consequences on the fish stock (Yu, 1991).

The global marine fish catch is hitting its upper limit and are experiencing difficulties; hence fisheries require to improve dramatically to meet the demands that are being placed on them (McClanahan & Castilla 2007). The rate of overfished stocks, as well as the indirect effects of fisheries on marine ecosystems, demonstrates that management is critically deteriorating to maintain the desired goal of ensuring sustainability. Significant ecological and biodiversity changes to fishery biomass are discernible from the incidental catch of fisheries and are attributed to the constant nature of fishing expansion activities to new territories (Worm *et al.*, 2006). However, Salomon *et al.* (2011) indicates that declines in biomass are integral unit of exploitation process of resources but, minimizing subsequent negative effects on the biodiversity is becoming undulating concern for contemporary fisheries management practitioners.

Almost all of the developed nation's fisheries biodiversity value had crossed exploitation level since the 1980s, compared to less developed countries but efforts continue to increase even

despite yields showing stabilization since the mid 1990s (Worm & Branch, 2012). This continually increasing fishing trend as a result of incessant socio-political pressure for extreme catch and the inherent uncertainty in predicting the harvest that results population failure is due to coastal nations' exclusive economic zones (EEZ's) rights to expand to 200 miles, thus, subjecting fisheries sector disheartening problems of overcapitalization, biodiversity, and ecosystem depletion, poor yields; as well as conflicts. (Hanna, 1999).

Marine fishery resources are therefore important sources of human nutrition, especially for developing nations where world's poorest people live. According to FAO (2010), In 2008, fish provided more than three billion people-about 15 percent of their average animal protein consumption. This necessitates ensuring the sustainability and long-term health of marine fishery resources. Consequently, United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Fish Stock Agreement (UNFSA-1995) and FAO Code of Conduct for Responsible Fisheries (Doulman, 1995) all require sustaining or replenishing fish stocks at rate that allow maximum production yield. To ensure meeting above requirement of sustainable exploitation, these international bodies and treaties, in particular FAO require fisheries management systems pegged explicitly on political objectives, ideally with transparent priorities (Cochrane et al., 2011). Generally, success of a management practices is often measured in terms of biological, economic, social, and political objectives. Clearly, reaching consensus on how these fisheries can be managed to reduce risks of crossing desired limits while achieving social and economic objectives is paramount importance. Therefore, proper understanding of the fishery management process can only occur only in analyzing the incentives and capacity of the main key stakeholders: the management authority and the fisheries community (Beddington et al., 2007).

2.2.2 Definition of Small-Scale Fisheries

Small-scale fisheries are generally recognized as contrary to large-scale fishing, which means that the term has yet to acquire widely accepted definition. In that case, SSF are discussed as the -sector employing vessels of maximum 15 meters in length (FAO, 2005; Mathew, 2001; Lunn & Dearden, 2006; Tieze et, al. 2000). Vessels of that range have historically taken shapes of different dimensions, starting with non-mechanized to most recent ones that are powered with engines (Anuchiracheeva et al. 2003; Mathew 2003; Stobutzki et. al., 2006). Low capability of

fishing boats highlights important aspect of SSF as these vessels operate near shore and frequently employ closely related members as fishing activities (Anuchiracheeva et al., 2003). Moreover, they are increasingly seen as key contributors to incomes and livelihoods of millions of people around the world; the total production from small-scale fisheries sector is close to matching that of the large-scale fisheries capacity (Bene, et al., 2007).

The utilization weak fishing gears such as lines, gill nets, trammel nets, and hook lines clearly distinguish from the larger commercial boats, restricting capture per unit effort (Hauck, 2008). Other features characterizing SSF is the social settings, governability, economic realities and market processes (Pomeroy & Andrew 2011; Chuenpagdee & Jentoft, 2015). Furthermore, SSF catch mainly goes to local markets, or used as daily subsistence as opposed large scale fishing (Jones et al., 2010). In some peculiar instances, a vibrant social cohesion persists among SSF, mostly intended to be treated mechanism of governance, enhancing cooperation and resource conservation (Jentoft & Chuenpagdee 2015). In this aspect, contemporary artisanal fish and market structures in Somalia are generally small scale and largely varied.

Due to the vessels and technical capacity they use, local fishers are restricted to fishing in shallow coastal waters contrary to foreign industrial fleets that historically exploited offshore marine resources. The main fishing grounds for the small-scale fisheries are divided into the major coastal towns, like the city of Mogadishu. The fisher communities generally constitute of traditional fishers dwelling in about 50 fishing villages along the coast of the country. About 30,000 fishermen is believed to be entirely involved in fisheries as primary sector; coupled with part-time fishermen or seasonally engaged in the fishery activities, are rounded off to be approximately 60,000 (FAO, 2005).

According to the Fisheries Law of Somalia; the provision and guidelines of Ministry of Fisheries and Marine Resources, marine capture is divided as small, artisanal, semi-commercial and commercial. The Ministry of Fisheries and Marine Resources considers “artisanal” and “traditional” sectors and alludes in reference to small scale sector as opposed to the industrial sector (FAO, 2005). However, present institutional framework for fisheries management, there is no clear or accepted definition for small and artisanal fisheries artisanal/small scale fisheries and

industrial fisheries (ASCLME, 2009); and for this reason, the study treats it as the SSF. Furthermore, Mogadishu as the capital city of the country, contrary to some Federal Member States (Somaliland and Puntland states) who already established their coastal and fisheries development strategies outlining categories of fishers such as artisanal, industrial, subsistence, and recreational fishers (Mohamed & Herzi, 2005); the authorities have yet to establish aspects of small-scale or artisanal fisheries properly (ASCLME, 2009).

2.2.3 Small-scale Fisheries Governance

From the onset of fisheries sector management debate, ‘Tragic Commons’ of Garrit Hardin’s is ideally conceptualized as the prime tool to approach. Hardin highlights overexploitation occurring when many users incessantly manipulated common resources, in which the respective grazers took advantage of the resources, and the costs borne equally among the associates (Hardin, 1968; Olstrom, 1990). Hence the tragedy of commons has become a feature in the marine fisheries sector since the fishermen consider common property resources and no single user has exclusive rights to the resource or can hinder others from engaging in its exploitation (Hilborn, et al., 2003).

According to the literatures (Berkes et al., 2003; Jentoft, 2007; Kooiman et al., 2008), part of the socio-ecological complexities of fisheries is the dynamics of the “community” that rely on the fisheries and that the resource systems is a superficial reality, especially for communities whose existence are attached on the resources units at their vicinity. For these communities, opportunities to adapt to and influence reform in the system are necessary, since their livelihood depends on the conditions of the ecological resource.

It is difficult to manage and maintain fisheries at large due to the complex, diverse and dynamic nature of the sector (Mikalsen, Hernes & Jentoft, 2007). Successful fisheries management considers three factors; the resource itself, the resource consumers (fisheries communities) and the resource management authorities (McClanahan & Castilla, 2007). As a result of these developments, various management approaches appeared; but traditional or conventional system remained unchallenged. This approach gave all nationals access right over the territorial waters but fisher’s actions was regulated through firm regulations including seasonal closures, effort

minimization, and production restriction which is translated in the generally recognized Total Allowable Effort/Catch, quotas (Morison, 2004; Hilborn, 2007).

The soundness of the resource systems relies on healthy social arrangements (Jentoft, 2000). But significant events happening around the globe including the waves of global interdependency (Klain et al., 2010), and the addition of multiple forces in fisheries processes, are making fisheries systems remain relatively complex, dynamic and change over time, and in turn influence impact their governability (Kooiman et al., 2008). Governance system composes of the governing system such as the government and the system to be governed that is social and ecological elements.

The smooth functioning of the governability mechanisms depends on the connection between the governing system and the governed systems (Kooiman et al., 2008). Cooperative governance style covers governing system and the system to be governed holistically and community officials can connect the community with the governance. Integrated governance responds to relationships between the numerous users in the system and the models of interaction, involving essentials that address cooperation and formal arrangements under which governance functions with the sole purpose of improving community's issues and designing better options (Kooiman et al., 2008).

In light with this argument, it is clear that governance is principally an inclusive idea that incorporates values and ideals, whereas management refers on the operational processes. However, Kooiman et al. (2008) notes that different researchers may employ the term 'management' 'governance', interchangeably on the assumptions of cultural and language disparity. Simply, management is inherent aspect of governance, and the researcher will use the terms interchangeably in the instance of highlighting management in a theme that intersects with the term governance.

Kooiman et al. (2008) discusses various models of governance such as self-governance, co-management and hierarchical styles. The hierarchical governance type entails of centralized, top-down governing approach, making coercion and enforcement as the main traits, while the rest of governance systems stress on community and cooperation centric approaches (Kooiman et al., 2008); and evidently criticized for its total technocratic aspect due to regulations heavily loaded on scientific basis and understanding (Raemaekers, 2009).

However, regardless of which model, governance arrangement should possess elements such as legitimacy, transparency, accountability, fairness, inclusivity, integration, capability and adaptability (Lockwood et al., 2010). Co-operative governance needs participation of communities in question in all stages of decision or policy making due to the ripple effect of the outcome (Klain et al., 2010). The fundamentals of effective governance involve guaranteeing diversity of perspective into the deliberation and policy-making, and respecting diversity (Lockwood et al., 2010). As a result, it is understood that, in a complex ecological resource system, participative models of governance are vital, and accepting that participatory efforts require concerned individuals to be consulted with on the matters affecting them (Sowman, 2011).

2.2.4 Co-operative Governance of Small-Scale Fisheries

Participatory approaches have gained momentum instead of stagnant and passive responsibilities that did not serve fishermen accordingly. Past fisheries management contributed to the failures of policies and difficulty to apply measures to exploit the fishery resource accordingly. The quality and robustness of life of coastal communities required accompaniment of recovery paradigms (Erratum, 2015). Fisheries co-management has gained significant attention throughout the world and subsequently studied extensively, thus inviting multi-faced definitions co-management around the globe as a means to solve governance systems of fisheries resource (Berkes, 2007; Evans, Cherrett, & Pemsil, 2011; Hara & Nielsen, 2003; Pomeroy, Katon, & Harkes, 2001). The movement for adopting of the concept of co-management emerged from the concerns of the Commons (Wilson, 2003); and in response frameworks have been advocated to allow appropriate understanding of local stakeholders importance (Dietz, Ostrom, and Stern, 2003).

Co-management, also known as collaborative management, necessitates participation of resource dependents that transforms from being passive consulted and receiving top-down information to complete participation in decision-making and collaborative management (Berkes et al, 2001). Management that gives fisherfolks the room to engage in active role in resource management processes, balancing rights and functions and working closely rather than antagonistic approach with the government, describes co- management. Fisheries co-management is cooperation in which government, the community of local resource users (fishers), external parties, other fisheries or coastal stakeholders (boat builders or owners, fish processors and traders, tourism

entities, etc.) share roles and responsibilities for making decisions regarding the governance of the fishery (Garcia & Charles, 2008).

Several literatures highlight accounts of management frameworks corresponding co-management as early as 1800's (Leal, 1998), in light with the movement of co-management gaining force within last three decades. Most of earlier co-management systems have been applied to answer inherent failure of conventional fisheries management style (Berkes et al., 2001; Cinner et al., 2012; Kittinger et al., 2013). Hence, problems obscuring realization of small-scale fisheries in co-management rests in the creation of balance between institutions and stakeholders (Jentoft et al., 1998; Wilson, 2003). Accomplishing this factor provides room for exchanging information, sense of participation by stake-holders, and forging trust, thus making co-management systems to effectively tackle issues in fishing communities (Bromley, 2016). Decentralization and co-management of fisheries resources management is more ideal for the current governance structure in Somalia, which is based on federal system of governance. Furthermore, the new fisheries management system must take into account the traditions and customs of the Somali fisherfolks (Roberts et al., 2019).

The below shown Figure 2 and 3 demonstrate co-management institutional flow chart and the various levels of participations by parties engaged; as highlighted by Pomeroy and Berkes (1997).

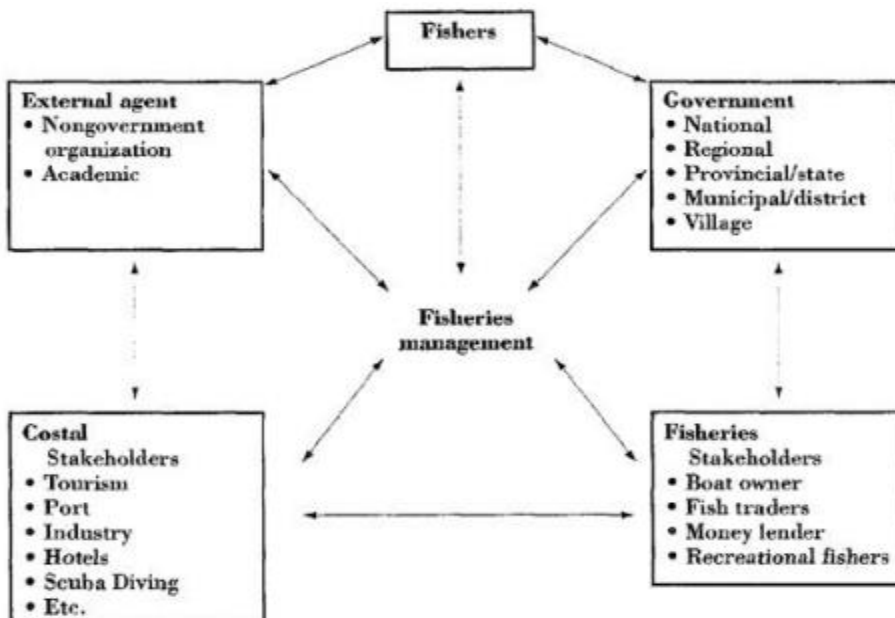


Figure 2. Co-management institutional flow chart (Pomeroy & Berkes 1997, p. 4)

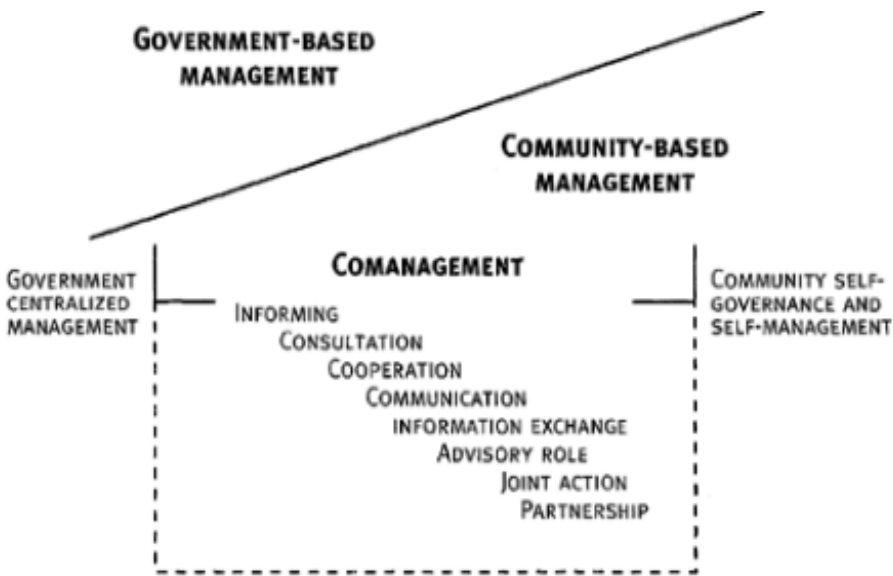


Figure 3. Level of involvement of stakeholders (Pomeroy & Berkes 1997, p. 466)

The general governance mechanism, the level of engagement by stakeholders, and the co-management style can range based on socio-cultural nature of a location, resulting different types and models of co-management (Pomeroy & Rivera-Guieb, 2006). Nonetheless, government involvement varies from maintaining centralized management to transferring control to the community. Such management interplays between the community and government defines the modality of co-management. According to Nielsen (1996), co-management is basically classified as: Instructive, consultative, cooperative, advisory and informative.

2.2.5 Small-Scale Fisheries Organizations in Africa

The Small-scale fishers in Africa are generally ill-organized or dealt with inappropriate organizational structures for involving in fisheries governance and management. The mechanisms taking place either operates at a very local level with limited information and authorities to engage in advanced policy-making procedures or function at a national level or beyond and lack enough resources and efforts to maintain their extensive structure effectively. The former structure mostly exists in Southern and East Africa. For example, there are 415 “community-basedorganisations” in Mozambique functioning at community level in 2010, but no national framework (Pereira, 2010). The latter type is ideally the model existing in West

African countries where several organizations exist. In addition, most of West African country's self-organizations are established as activity-based systems in which the fish traders are different and unique from the authority representing fish harvesters or boat owners.

Several studies carried out around the world exploring conditions that are impact the sustainable usage of small-scale fisheries. For instance, a research conducted in Ghana by Asare & Okyere (2012) reveal open common-pool processes result disputes related to fishing grounds and unwanted exploitation centered in usage of destructive gears leading to loss of fish stocks. Moreover, studies conducted in South Africa, India, Nigeria and the Philippines by Olomola (2008); Ratner et al. (2014), identify conflicts as main obstacles to the tapping and development of small-scale fisheries. Principally, these forms of conflicts range from violation of rules and legal arrangements, transgressing on the right of ownership, to disputes revolving fishing areas, and rights of access.

Nevertheless, there are other models that only function as a result of government backed programs intended for instituting co-management systems, and generally these organizations fail when government role effort is retreated (KAALO, 2017). While In some instances, there are various types of organization within the same country, in South Africa, fisherfolks along the west coast part exist as part of a communitybased organization referred as Coastal Links (Isaacs, 2013). The remote fishing communities are not well-organized and in turn further marginalized both in terms of resource distribution and engagement in decision making. This also applies to Puntland State of Somalia, where the effectively organized small-scale fishers managed to enjoy significant benefits than mal-organized fishers (KAALO, 2017). It is indicated that most part of small-scale fisheries as legally recognized sector in Africa. In several African countries, government appoints institutes serving as national entities addressing the gap among fishers and the fisheries ministries (Cox, 2012).

For instance, increased coordination for the sector has increased in West Indian Ocean (WIO) region (Comoros, Kenya, Madagascar, Mauritius, Mozambique, Re´union, Seychelles, Somalia, South Africa and Tanzania) to represent artisanal fisheries sector both sustainably and equitably through improved fisheries management organization practices to ensure vibrant potential

(Walmsley et al., 2006).

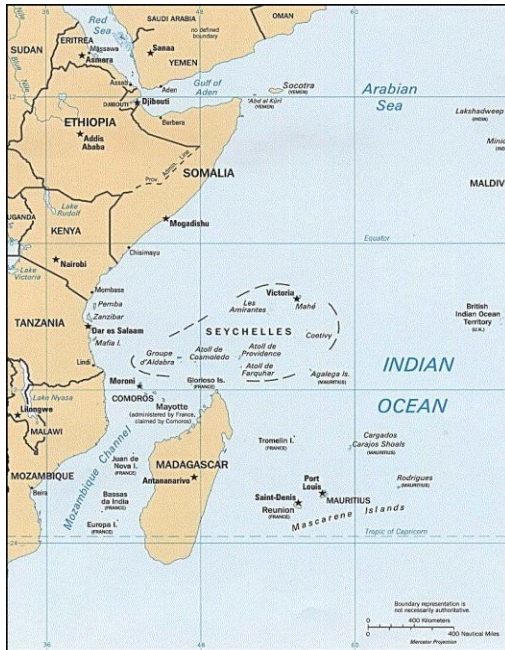


Figure. 4: Map of the Western Indian Ocean region
(Walmsley et al., 2006)

2.2.6 Policy and Governance of Small-Scale Fisheries in Somalia

Somalia had a centralized type of fisheries management in the post-independence period to the outbreak of the civil war that governed artisanal fishery management. It was a type of management that did value contribution from the various stakeholders of the fisheries sector even the fishing communities. In addition, it did not provide room for the fisheries sector to collaborate with other sectors of respective economy including tourism, agriculture, environment, maritime transport, local government, etc, therefore, presidential decrees proclaimed fisheries legislations and regulations while industrial fishery was operated in joint mechanisms initially with Soviet Union and later with Italian enterprises (TACS, 2015).

However, this type of fisheries management is not in harmony with modern Somalia; thus, bringing the need for a new type of fisheries management consideration that takes into account the traditions and customs of the Somali people, out of which decentralization and co-management approached as potentially ideal for the present governance system in Somalia of Federalism. In addition, the new fisheries co-management system should consider involvement of a broader range of stakeholders and access to the expertise and experience as an extension that combines a high degree of community and other stakeholder participation to lower the effects of

fishing and other activities on fishery resource (Roberts et al., 2019). Ideally, fisheries management entails an effort to balance the particular needs of a species and the needs of those that rely and the fish as well. It is intended at ensuring the fishery a sustainable ecosystem that can continue to be exploited into the future, resulting no, or minimal, harm to the eco-system at large (McClanahan & Castilla 2007).

Fisheries legislation in Somalia is obsolete and is no longer applicable fisheries management tool. The capacity to implement and enforce any fisheries regulation at the moment is quite a challenge at but in general, National jurisdiction (within the EEZ) for fisheries in Somalia is the sole responsibility of the Ministry of Fisheries and Marine Resources (MoFMR). The present Somali fisheries law dates from 1985 (Somali Fishery Law No. 23 of 30 November 1985). The existing regime for the regulation of the fisheries industry shows that there is no national fisheries policy in Somalia but the recognition of growing importance of small-scale fisheries in the Somali region that is of interest for the government and the international community is forcing, both Federal Government and Federal Member-State governments to engage in making strides toward managing marine resources by rewriting their fisheries laws and supporting local-level management (Hassan, 2011). Alongside this formal fisheries legislation regime is form of traditional fisheries management practices that operates in respective coastal areas to solve disputes related to the landing site.

To ensure a sustainable trend for fisheries both locally and globally, effective fisheries management system needs to be instituted for all species that are regarded as a resource, with a particular reference given to the traditional fish resource users as well as the need for the sustainability of a commercial gain (McClanahan & Castilla 2007). With the above information in place, less consideration is provided to ameliorate fisheries management in Somalia regime and part of the reason for that fact is that fisheries management is in deficit of empirical evidence of the effect fisheries industry. At the core of natural resource management must be the value that humans concert on that particular resource. To accordingly manage the resource, there must be a scientific understanding for the methods employed and this basis must be complimented with ongoing learning and collection of new data from monitoring mechanism that outline information on a continuous basis (Ward & Hegerl, 2013).

2.2.7 Mogadishu Small-Scale Fisheries Governance

Furthermore, fisherfolks were designed into fishing cooperatives and supported with technical and financial assistance in the realm of capacity building and technical equipments such as motorized fishing boats, subsidized fuel, spare parts, fishing gear, office blocks and storage facilities for salt-dried products with sole purpose of equipping the fishermen with stable means of livelihoods and food security. Moreover, in a movement to multiply production of small-scale fisheries, various shore-based facilities were created through bilateral and multilateral investments at different locations along the coastline, especially a contemporary fish market and fiberglass boatyard in Mogadishu (Mohamed & Hirzi, 2005).

The establishment of fishers' entities was instituted in Somalia as early as 1970s when the government developed fishing cooperatives along with the efforts to utilize from the fish resources. Most of the cooperatives fall under the district level form managed by the Ministry of Fisheries. At last, all cooperatives in the country were merged under the administration of the Union of Somali Fish Cooperatives Movement, subsequently providing fishing cooperatives with greater authority to elect their leaders, which were earlier appointed by the Ministry of Fisheries in Mogadishu (Glaser et al., 2015).

The main role for the fishing cooperatives is to manage the internal issues and the daily activities of the small-scale fisheries, mainly conflicts that often occur among the fishers. Reflecting of conflicts taking place along the coasts of Somali communities, fisheries dispute usually emerge from uncontrolled competition for access of fishery resource. Though, incidents occurred more often in the 2000's, recently, there is limited understanding the degree to whether conflict events increased or not (Glaser et al., 2018). The Federal Republic of Somalia legally began to issue fishing licenses to foreign vessels on December 11, 2018. Chinese longline fishing vessels acquired one year of legal access to fish Somali Exclusive Economic Zone (EEZ), a region described as abundant and valuable fish resources. In respect, the government obtained over \$1 million in license revenue and can in turn reinvested into developing the domestic fishing sector. Somalia's Fisheries Law No. 23, updated in 2014, indicates that licensed foreign vessels can only fish beyond 24 kilometers from coastline; this clause is meant to preserve small-scale fishers

from disruption and competition (MoFMR, 2014). The recent licensing move has angered the local fishers, and fear grows that it might revive piracy activities which have long been the source of conflict around Somali waters (Pramod, 2018).

The top-to down management with multiple governance system in Mogadishu in which the formal organization tends to dictate orders and regulation while the reduced power of self-organization for the fisher folks to run their affairs is being influenced by the government institution. Though, numerous studies indicate of the importance of community governance organizations in supporting sustainability of the sector, studies covering the local governance system have not yet been conducted (Omar et al., 2019).

The division of local government's duties on the basis of fisheries governance is an obstacle and a challenge for the sector due to the Somali clan systems; and there is reduced probability that this trend will improve (Musse & Mahamud, 1999). Some of the literatures clearly indicate that the lack of diversified economy and limited opportunities for the country's resources invites the negative effects of unstable policies of the power driven leaders. Other data concurs that this should serve as capacity to establish proper channels and must be of little setback considering the perspective of the local fishermen. Nonetheless, leaders should compromise and engage in the promotion of the Industry in respective areas as fisherfolks understand existing policies do not meet their standard in general and in turn show unconcerned benefits to depend on ineffective governance practices (Musse & Mahamud, 1999).

2.3 Theoretical Approach

The study is based on the conceptual frameworks of Garrett Hardin and Elinor Ostrom. The famous Garrett Hardin's "Tragedy of the Commons" underscores classical liberal economic assumptions and the subsequent interplay between human and market realities, pertaining profit orientation and the actual realities, thus leading to overexploitation. On the other hand, Elinor Ostrom's theory on "Governing the Commons" stresses on community management and that common pool resources management are often not treated as open-access resources as opposed to Hardin who reiterates on individual led interest. However, though both theories differ on the

assumptions, but they clearly identify the importance of access, usage and governance of Common Pool Resources.

The research applied these theories due to their input and impact on shaping the governance and management of common property resources. Hardin argues that the administration of a particular entity, whether private property is in the interest of the long-sustainability of the shared commons. Whereas Ostrom's disputes by indicating that this dilemma can be solve through 'collective self-governance'. She outlines several successful models of this approach and that there are parts around the world that formed their own self-governing institutions commons without state regulation or privatisation to sustainably maintain the benefits of a common pool resource (CPR). Further, Ostrom shares overall peculiarities of institutional arrangements that possess robustness aspect in addressing ideal settings of common pool resource. These characteristics are known as 'the eight design principles' (Ostrom, 1990). Therefore, this framework of Ostrom will be used to explore and analyse whether current existing status of small-scale fisheries in Mogadishu meet the framework to judge the long-term sustainability of the sector.

Table 1. List and definitions of Ostrom’s design principles (Ostrom 1990, Cox et al. 2010).

#	Principle (Ostrom 1990, Cox et al. 2010)	Definition (Cox et al. 2010)
1A.	Clearly defined user boundaries	Clear boundaries between legitimate users and nonusers
1B.	Clearly defined resource boundaries	Clear boundaries between a resource systems and larger ecological systems.
2A.	Congruence between rules and local conditions	Appropriation and provision rules are congruent with local social and environmental conditions.
2B.	Proportional equivalence between costs and benefits	Benefits obtained by users from a common-pool resource, should be proportional to the amount of inputs required.
3.	Collective-choice arrangements	Most individuals affected by the decisions can participate in reforming the operational rules.
4A.	Monitoring rule enforcement	Monitors who are liable to the users oversee the appropriation and provision of the users.
4B.	Monitoring the resources	Monitors who are accountable to the users oversee the state of the resource.
5.	Graduated sanctions	Depending on the serious of the offense, appropriators can be assessed with graduated by other appropriators, officials accountable to the appropriators, or both.
6.	Conflict-resolution mechanisms	Appropriators and their representative posses high to low-cost local arrangements to resolve conflicts among appropriators or between appropriators and authorities.
7.	Minimal recognition of rights	The rights of appropriators to create their own arrangements are not coerced by external formal authorities.
8.	Nested enterprises	All matters surrounding appropriators are organized in multiple levels of nested enterprises.

2.4 Unresolved Issues, Gaps in the Literature and Conceptual Framework

The conceptual framework is presented to highlight the general research explanation. Miles and Huberman (1994) suggest that a conceptual framework should be visually presented in order to depict all the constructs and the relationships existing between them. The constructs that guide the conceptual framework for this study, and the relationships between them, are shown diagrammatically in Figure 4. This theoretical model has never been used in fisheries studies in Somalia. Various conceptual and empirical findings that are related to the antecedents and consequences of fisheries sector have been reflected. The independent variable is fishery resource management, the dependent variable as coastal fisherfolks livelihood while the intervening variable is assessed as the practices or systems engaged in the process.

Based on the thorough review of literature of empirical evidences provided in this chapter, past studies fundamentally concentrated on looking at piracy and IUU fishing and its subsequent economic aspect caused in both Somalia and globally. As a result, it is important to contribute to the existing insufficient knowledge in Somalia by showcasing the extent of the vast coastline can contribute in responsible tapping of marine fisheries, its management and coastal livelihood development. The intended contribution focuses on the nature of fishery resources management in place and problems facing the fishery sector to enhance fisheries based livelihoods of the coastal communities in Mogadishu. From this point, the literature indicated that Somalia has abundance of marine fishery resources; however, unlike other sectors of the economy, the fisheries sector is suffering from ineffective legal frameworks, weak capacity and development of policies, inconsistent regulations; lack of reliable data on fisheries status, poor enforcement capabilities, management systems that has no room for primary stakeholder views in the decision-making process, outdated fishing equipment, and etc.

2.5 Summary

Ensuring fishery resources management system for the coastal communities in Mogadishu means sustained resources and improved coastal community livelihood. It explains that marine fisheries primarily rely on effective management practices that facilitate all the necessary services required in the domain and which subsequently improve both the sustainability of the resources

and the principal stakeholder's livelihood-fisherfolks. Evidences show that strong fisheries resource management are highly related to fisheries sustainability and improved coastal community's livelihood. The theoretical framework of this study has identified the existence of resources within a geographical region can be maximized to result development and sustained advantage in the hands of effective resource management practices. For this reason, management authorities are required to facilitate productive environment for fishery sector to attain the attributed positive implications to coastal livelihoods and marine fisheries.

CHAPTER THREE

RESEARCH METHODOLOGY AND DESIGN

This chapter discusses of the research approach employed in this study to comprehend the impact of the local governance on the sustainable utilization of the small-scale fisheries sector in Mogadishu. The chapter highlights the rationale for the qualitative method, and the data collection and analysis procedures utilized in the research. A case study design was applied to understand the status of the sector. In addition, this chapter covers the reliability of the study with the ethical considerations and procedures observed during the research.

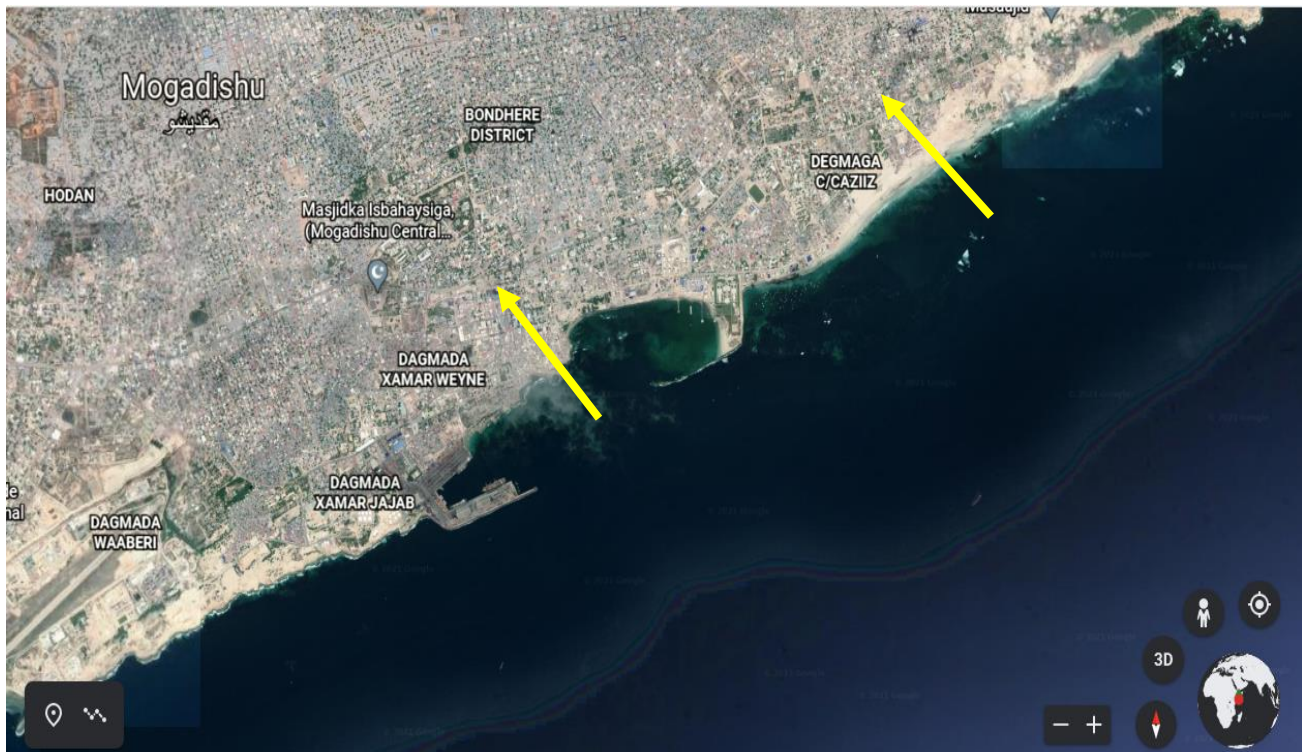
3.1 Study Area

Mogadishu of Banadir Regional Administration region, is situated along the southeastern sand dune coast of Somalia on the Horn of Africa, with relatively arid and desert climate. The coast extending from north and south of the city is utilized considerably by the inhabitants, especially the coastal fishermen and also visitors. The geographical location of the city is 10 degrees 00 minutes north latitude, and 49 degrees 00 minutes east longitude while the topographical characteristics of the city is generally of flat level land. The city is designed in five distinct sectors that reflect distinguished parts of the city's history (Unruh, 2018).

Mogadishu is a rapidly growing city and the main coastal city of Somalia. The city has long served as an essential port for Somalia's maritime transport along the coast of Indian Ocean. In 2015, the Guardian ranked Mogadishu 2nd in a list of world fastest growing city. The city is administratively composed of eighteen districts with average temperature of around 27 °C (81 °F). The oldest city, Hamar Weyne, is historically settled and founded by the Arabs around the year 900, and sits on a small piece of land along the Indian Ocean. Parts of it are later constructed in several periods by early settlers, like Portuguese, but significantly built by the Italian colonial administration between 1900 and 1934 in which, despite the years of civil war, the architectural design of Italians stands tall (Unruh, 2018). At the north of Mogadishu, Lido beach in the districts of Abdiyaziz was developed during the 1930s for Italians dwelling in Somalia's Italian capital (Secure Fisheries, 2019).

Presently, artisanal fisheries, particularly in Lido beach consist of a mixture of almost 135 types of small-scale rowing boats, canoes and Volvo fiberglass motorboats (about 3-12m) long produced locally. Lido and Hamarweyne fish landings serve as the main fish landings. During the peak fishing season which runs from October to May, Lido beach landing site is comparatively crowded with fishery engaged individuals like producers, distributors and marketers (Farah, 2020).

(Adopted from Google Earth)



3.1.1 Rationale for choosing the specific study area

Two districts in Mogadishu namely Abdiiaziz and Hamarweyne were selected for the study by considering the specific research objectives as to explore the present situation of small-scale fishery sector. The reasons to select the above study area for research include: the fishery sector in these two locations are comparatively developed and serve as the main fishery activities domain for the city. The small-scale fishermen in these areas have relatively higher production as opposed to other districts. Finally, communication and data collection suitability of these areas also contributed to choosing these districts in Mogadishu of Somalia.



Photo of fishermen at Lido Beach; taken on behalf of the author by one of the research respondents (14-01-2022)

Lido beach of Abdiyaziz district, was established during the late 1930s by early Italians inhabiting along the area, in which the name “Lido” itself driven from “beach” in Italian. Currently, it’s a key center for many fisheries stakeholders ‘daily activities. Fishermen in Lido beach utilize small boats and ancient fishing efforts to conduct their daily activities. On the other hand, Hamarweyne, the oldest and the main fish market in Mogadishu is located in Hamarweyne districts. Over 50 limited scale fishing boats are moored off along this coast (Farah, 2020). Moreover, these sites constitute major outlets for fishes supply in Mogadishu coast and support not only meeting the demands of fishing supply but the livelihood of hundreds of small-scale fisheries (Farah, 2020).

3.2 Research Approach

Research design is the essential component of any research and generally provides the strategy and procedures to execute a particular research (Punch, 1998). A qualitative approach was adopted for the study. The researcher deemed this method viable as the nature of the study is to

explore the fundamental nature of the small-scale fisheries sector through the lenses of common-pool resources. Qualitative research method is used in the field of social sciences to offer researchers to study social and cultural phenomena. According to Creswell (2009), qualitative approach refers to mechanisms of examining and understanding the meanings that community or social setting associate to a challenge. Throughout the process of qualitative research, the researcher maintains focusing on exploring the understanding of what respondents perceives about the problem under investigation as opposed to what the researcher accord to the problem (Creswell, 2007). In this approach, the researcher obtains data at the study location where participants experience the challenge of the topic under examination (Creswell, 2009). Qualitative data sources include observation and participation observation (fieldwork), Qualitative data sources involve fieldwork, interviews and questionnaires; and also studying secondary sources such as documents and texts (Babu, 2016). In this study, interview sources were used to acquire the information needed. The rationale for employing the interview is to enable the researcher to understand the experiences of the participants on the issue.

3.3 Research Design

This research made use of the single exploratory case study research which is one of the common design employed within qualitative research (Yin, 2018). Single case study design deals with the study as a unit (Drummond, 1996), but requires prudent exploration of the case under investigation (Yin, 2009); in which in the current study dealing with understanding and underscoring the local governance status and subsequent impact on the small-scale fisheries sector. However, Griffin and Moorhead (2013) indicate that the downside of this method's difficulty to replicate findings to other possible challenges due to the aspects particularly related to the actual problem explored.

3.4 Study Population and Sample size

A research population is also known as a clearly-defined collection of individuals or objects deemed to possess similar traits. All individuals or objects within a certain population principally have a common, binding characteristic. Robinson (2014) argues that a researcher to have a

tentative number in place prior to planned study. Consequently, sampling population is also known to as an abstract concept of a given population of several aspects of which a researcher extracts anticipated study sample (Neuman, 2011). For this research, below table 2 demonstrates the population outline of which samples were drawn.

Table 2. Sampling of respondents (Conducted between Sep 2021-March 2022)

<i>#</i>	<i>Sector</i>	<i>Numbers</i>
1	Ministry of Fisheries and Marine Resources (FGS)	1 respondent from each organization
2	Mogadishu Municipality	
3	Somali Marine Resource Research Center (FGS)	
4	Secure Fisheries (International NGO)	
5	DEH (Local NGO)	
6	Lido Fish Cooperative	
7	Hamar Weyne Fish Cooperative	
8	Fishermen from Lido District	
9	Fishermen from Hamar Weyne District	

In this study, the researcher implemented the purposive sampling method to obtain the potential respondents. In purposive sampling, researcher depend on the expertise or past evidence to intentionally draw sets of analysis in a way that the selected unit may be considered to be representative of the ideal population (Welman, Kruger & Mitchell, 2005). This indicates that the researcher identifies participants due to their availability and willingness to participate in the study; combined with the researcher’s prior knowledge of the population. This is supported by author Denscombe (2002) who argues that, purposive sampling is ideal in a situation where the researcher already familiar about the particular situation studies and knowingly selects specific ones because they is a chance to acquire the useful data. On the other hand, the demerits of this sampling are that the researcher forms an activite role in deciding who should/shouldn’t be in the sample; thus invite bias can (Kanjee, 1999).

To conduct the sampling process, the researcher selected the respondents from various institutions, including Federal Level Institutions, Local Government of Mogadishu, Non-

Governmental Authorities; and Fish Cooperatives and Fishermen from both Abdiaziz and Hamarweyne Districts of Banadir Regional Administration. The researcher negotiated entry with the participants from the respective institutions, and systematically presented the intentions of the study and accordingly requested to have an online interview meeting. Due to the travel restrictions and repercussions of COVID-19, the interviews were all conducted via online platforms including Whatsapp and Zoom. The interview's length differed among the respondents but generally took about 30 to 45 minutes.

3.5 Tools of Data Collection

The researcher utilized a semi-structured interview to investigate the issue further openly and to provide the interviewees with atmosphere to sufficiently show their perceptions and ideas in their own way (Esterberg, 2002). This gave the researcher opportunity to deeply explore from various angles ample through the discussions. Subsequently, this approach manifests its disadvantage due to the likely un-willingness or hesitation of the interviewees to express enough facts to the interviewer anticipation of the matter (Marshall & Rossman, 2006). To address this downside, the researcher firstly extensively cleared the instrument with the supervisor, then one semi-structured pre-test interview to identify whether the question were clear and comprehensive enough to participants.

Data Collection Method

3.5.1 Primary Data Collection

This research adopted the method of interview. Interview is useful because it allows a researcher to obtain detailed information about feelings, perceptions, and options and offer more comprehensive questions to be asked through exchange of ideas and information. In particular, the study applied semi-structured interview. Bryman (2016), contends that interviews as one of the widely used method of data collection in case study. The online face to face interviews equipped the researcher with the tool to comprehend the respondents' knowledge and awareness of the issue in depth (Seidman, 2013). A semi-structured interview implies that the researcher inquires participants similar of the pre-established questions, in the same sequence (Goodwin & Goodwin, 1996). The interview questions were established in English Language but to ensure effective response from the participants, the interview flow was conducted using the mother

tongue language (Somali), and later carefully transcribed and translated to English.

3.6 Data Analysis

Data analysis refers to the process that ideally distinguishes qualitative research from quantitative. It's a process by which researchers filter and organize to create meaning and improve understanding of the knowledge the data embodies and subsequently demonstrate to the readers (Miles & Huberman, 1994). The process of analysis comprised reading through all transcripts and grouping similar answers in line with emerging themes and attaching labels known as codes (Bryman, 2012). The early codes were again re-organized and data further grouped based on the connection to the framework guiding the side of SES Design Principles. For this reason, applying design principle for my analysis, and delivering appropriate solutions the research question to properly decipher problems, and advantages of the existing community governance approach, and towards shedding light whether the current governance is effective and sustainable for the sector. This form of qualitative analysis ensured complying with the concepts and categories established accordingly and in turn manifested that the studies issue based on the gathered data and explored how such ideas and categories were applied to demonstrate meanings of the interview responses and generally collected data.

3.7 Limitations of the Study

The single explorative case study design intends to depict the proper aspect of a given situation and offer essential results better than many other methods but its limitations are that the outcomes cannot be articulated in other study. The findings cannot be replicated in other studies due to its attachment on the actual study (Griffin & Moorhead, 2013). The results generated could be difficult to apply to wider population due to the considerable small sample and identification of subjects on a non-random scale (Hancock, 2002); and sometimes it is hard to generalize the findings (Gerring, 2004). In addition, because of the sensitivity of the study, the respondents may have been provided desirable atmosphere to protect themselves, due to their affiliations with governmental and fear that it might cost their positions.

For this reason, the researcher guaranteed them that their identities, participation will be treated confidentially and the communicated information will be handled anonymously. Furthermore, since the interviews were conducted online, there was internet weakness and occasional voice

hearing difficulties; in turn this might have affected the proper transmission of the intended answers. The purposive sampling of data collection may induce bias when the researcher gathers information from an area and selecting friend or people are familiar with the researcher for the interview. Nonetheless, a case from the two districts of Mogadishu can be a limitation to generalize the findings to the entire country; including setbacks associated with small sample size and the interviews conducted remotely due to travel restrictions following the COVID-19 pandemic.

3.8 Ethical Considerations

Ethical considerations are informed consent and protecting participants' anonymity as well as peculiar realities considerations (Marshall & Rossman, 2006). For the study, employing interviews as a tool for data collection has its sensitivity and concealing the profile including privacy and interests of the participants is of utmost importance. In that regard, a guarantee was given to the respondents that their identity will not be disclosed and that it is an anonymous through the identified university's ethical considerations guideline.

3.9 Chapter Summary

The chapter provided the discussion on the methodology and design of the research, and in particular highlighting the population and sampling procedures, data collection and analysis. Further, the ethical consideration observed in the process of conducting the data collection and the limitation of the study. In the following Chapter, analysis of the interpretation analysis of the data is elaborated.

CHAPTER FOUR

ANALYSIS AND DISCUSSION

In this chapter, analysis of whether the small scale fisheries in fisheries in Mogadishu meet with Ostrom's design principles is discussed, depicting if conditions for collective action are met (Table 2 and 3). Principles which are not achieved and those that are partially achieved will all be reflected. Findings are demonstrated jointly and not in different chapter. Attention is accorded to all Principles except Principle 8, in which in this is deemed irrelevant since the research does not cover about the situation of small-scale fisheries in the country. Finally, the research will point out potentials for increasing addressing the design principles collectively.

4.1 Findings

This study applied Ostrom's design principles (1990) as reviewed (Cox et al., 2010) to investigate the nature of small fisheries governance in Mogadishu and that I do not assess the institutional performance of the existing governance systems based on the corresponding management systems and the principles, and subsequently reflect on institutional arrangements. The information drawn from the interviews with respondents from concerned institutions in the study area demonstrate that their institutional arrangements do not properly cover the 8 design principles, and applied principles with the situation shown in Tables 2 and 3 elaborately.

4.1.1 Application of Ostrom's Design Principles

Institutions, recognized as existing authorities controlling activities revolving human actions and its surrounding physical world based on established rules, customs and common strategies, serve as the key indicators of the socio-ecological sustainability of the resources (Crawford & Ostrom, 1995). As discussed in the literature review chapter, key structures or characteristics of a successful governing of common-pool resources is broadly outlined by Authors such as Ostrom (1990), Wade (1988), and Platteau (1996). In their respective studies, they examine what institutional traits are more probable to be linked with ideal comprehensive use of natural resources. Particularly, based on successive and prolonged holistic studies conducted by Elinor Ostrom regarding viable governing institutions of common-pool resources, suggest "8 design principles" (Table 1) in which the institutional arrangements of sustainable commons

management touch different areas including fisheries as one of the main natural resource systems (Ostrom, 2009; Anderies et al 2004).

In the literature review chapter, analysis of these principles constituted various natural resource management understanding from various authors. For instance, some researchers express these DPs as a normative framework as opposed to their counterparts that view them as experimental or diagnostic tools.

These design principles, which are later modeled Cox et al (2010) are generally construed as a set of conditions that can fuel the chances of supporting collective action across time period, present a broad set of elements that cover two fundamental aspects: the nature of activities that regulations address and ways of monitoring and effectively implementing the rules.

The data gathered from interviews with executive members of the CWP management committees show that their institutional structures generally reflect the 8 design principles. This correspondence is summarized in Tables 2 and 3 and discussed in more detail below.

Table 3. Survey results in relation to Ostrom’s design principles 1–7.

#Principle	Mogadishu Small-Scale Fisheries Governance							
	R1	R2	R3	R4	R5	R6	R7	R8
<i>1. Clear boundaries</i>								
How fishing rights acquired?	Registering with Cooperatives and apply	Register with cooperatives and apply	Apply	apply in accordance with law	apply in accordance with law	apply in accordance with law	Cooperatives apply on behalf	apply in accordance with law
Nature of resource systems source	Open-access	Open-access	Open-access	Open-access	Open-access	Open-access	Open-access	Open-access
Status of resource users	Limited means and free to use whichever gears	Limited means and free to use whichever gears	Limited means and free to use whichever gears	Poor condition and fish without restrictions	Limited scale and in weak condition	Poor condition and fish without restrictions	Limited means and free to use whichever gears	Limited means and free to use whichever gears
Trends of catch	Declined compared to the past	Never investigated	No difference	Declined compared to the past	Declined compared to the past	Current catch is better	Declined compared to the past	Declined compared to the past

#Principle	Mogadishu Small-Scale Fisheries Governance							
	R1	R2	R3	R4	R5	R6	R7	R8
2. Congruence with local conditions								
Nature of access right	Everyone has right to access	Everyone has right to access	Everyone has right to access	Everyone has right to access	Everyone has right to access	Everyone has right to access	Everyone has right to access	Everyone has right to access
How access is arranged?	In accordance with Fisheries Law No.23	In accordance with Fisheries Law No. 23	Fisheries law and Cooperatives guidelines	Fisheries law and Cooperatives guidelines	Fisheries law and Cooperatives guidelines	Fisheries law and Cooperatives guidelines	Fisheries law and Cooperatives guidelines	Fisheries law and Cooperatives guidelines
Mechanisms for times of resource instability?	No special case	No special case	No special case	No special case	Up-to the fishermen	Up-to the fishermen	Up-to the fishermen	No special case
3. Collective-choice arrangements								
Community fishery agreements and formal arrangements	Weak and not modernized	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize
Participation of fishermen into the management process	Very poor	Very poor	Very poor	Don't participate	Don't participate	Very poor	Don't participate	Don't participate

#Principle	Mogadishu Small-Scale Fisheries Governance							
	R1	R2	R3	R4	R5	R6	R7	R8
3. Collective-choice arrangements								
Community fishery agreements and formal arrangements	Weak and not modernized	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize	Weak and not modernize
Participation of fishermen into the management process	Very poor	Very poor	Very poor	Don't participate	Don't participate	Very poor	Don't participate	Don't participate
4. Monitoring								
Level of monitoring	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low
Government monitoring capacity	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate
Cooperatives monitoring level	Weak	They are not even concerned	Weak	Weak	Weak	Weak	They are not even concerned	They are not even concerned
Monitoring efforts of fishermen	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude	Unconcerned attitude
Compliance monitored	Not at all	Not at all	To some level	To some level	No	No	No	No
Sanctions for noncompliance	Random and situation based	Random and situation based	Limited implementation efforts	Limited implementation efforts	Exist only in righting	Exist only in righting	Limited implementation efforts	Random and situation based

#Principle	Mogadishu Small-Scale Fisheries Governance							
	R1	R2	R3	R4	R5	R6	R7	R8
5. Graduated sanctions								
Consequence for resource use violation	Fines, or brought to court in case of endangered species	Fines, or brought to court in case of endangered species	Provisions exist but not implemented	Fines, or brought to court in case of endangered species	Provisions exist but not implemented	Provisions exist but not implemented	Fines, or brought to court in case of endangered species	Provisions exist but not implemented
Measures against incessant violations	heavy penalties	Data not available	heavy penalties	No sanction at all	Not sanction at all	No sanction at all	No sanction	Data not available
Cooperative level sanctions	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs	Lose cooperative membership or left out from development programs
Entity responsible for enforcing fishery use rules	Government	Government	Government	Government	Government	Government	Government	Government
Basis or source for sanctions	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23	Fisheries Law No.: 23

#Principle	Mogadishu Small-Scale Fisheries Governance							
	R1	R2	R3	R4	R5	R6	R7	R8
6. Conflict-resolution mechanisms								
Fishermen and conflict	Frequent	Frequent	Complex and almost everyday	Frequent	Frequent	Complex and almost everyday	Complex and almost everyday	Frequent
Government and fisheries conflict	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government	Conflicts rarely reach government
Cooperatives and conflict resolution	Responsible for solving	Responsible for solving	Responsible for solving	Responsible for solving	Responsible for solving	Responsible for solving	Responsible for solving	Responsible for solving
Fishers view on conflict resolution mechanisms?	Good and rarely feel dissatisfied with decisions	Good	Good	Good	Good	Good	Good	Good and rarely feel dissatisfied with means
7. Recognition of the right to organization								
Are the cooperative recognized?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are cooperatives management authority respected?	To some extent	To some extent	To some extent	To some extent	To some extent	To some extent	To some extent	To some extent
Government support for the cooperatives	Weak	Weak	Weak	Weak	Weak	Weak	Weak	Weak

Participation of fishermen into the decision making process	Not involved	Not involved	They are involved	Not involved	Not involved	Not involved	Not involved	Not involved
8. Nested governance								
Not applied	_____	_____	_____	_____	_____	_____	_____	_____

4.1.1 Principle 1A: User boundaries:

Clear boundaries between legitimate users and nonusers are crucial for collective action (Principle 1A), and this is fundamentally associated to resource boundaries (Ostrom 1990; Cox et al. 2010). MM has yet to set regulations providing goals of fisher mobility along the coast of Mogadishu, describing permits to depart from a landing site to another in light with the licensed location, including neighboring study sites. Further, most of fishers from other regions of the country cross boundaries regardless of fishing zones, benefiting from the inexistence of such prohibiting laws and weak enforcement of local authorities. Fishers, reiterate of the importance of controlling mobility due to the migration of fish species, leaving no option for the fishers but pursuing them. Nevertheless, respondents believe that poor governance reflect the condition of present mobility dynamics of fishing boats which is ill-organized and in some cases experiencing numerous boats fishing in a given small area due to the fish distribution. Several irregular disparities take place occurring in the SSF at the study areas, impacting realization of this principle.

Along the waters of Somalia, foreign illegal fishing overexploits many of the marine resources species affecting the small-scale fishery sector through resource decline (Glaser et al., 2015). Mogadishu SSF, fishermen express the main causes of resource decline as the external large scale fishing vessels that employ degrading and forbidden fishing techniques. However, fears surround what the fishermen refer to “legalized illegal fishing”, criticizing the continuing provision of fishing licenses to industrial fishing fleets, most recent Chinese vessels. With that caveat in mind, “Legitimate users” refer to the fishermen with valid fishing license issued by the Ministry of Fisheries and Marine Resources, and the Mogadishu Local Government. In Mogadishu, small-scale fishing licenses do not define boundaries for fishing activities, and fishers primarily fish near their community, with some informal allocation of fishing sites by the cooperatives, but numerous commonly used locations among fishers inhabiting the study site.

4.1.1 Principle 1B: Resource boundaries:

Principle 1B define that resource systems should be possess well-defined boundaries, differentiating it from the apparent or general biophysical ecosystem. These boundaries assist in

compartmentalizing the positive and negative derivatives generated from resource usage (Ostrom 1990; Cox et al. 2010).

The fishery and its activity in the study sites are widely distributed, thus making it harder to meet with Principle 1B. For instance, highly migratory fish species including Sharks, tuna and tuna-like species, and also marine turtles which are widely distributed along the Indian coast and mostly preferred by the general public serve as the main target species for the fishermen. Except sea turtles which are endangered species, the marine key predators encompassing sharks and tuna, are already captured at maximum capacity and there is no further opportunity to sustainably increase catch of these species, but their governance have historically been characterized by limited capacity of governance (Glaser et al., 2015). For this reason, according to authors (Pinkerton & Weinstein 1995; Fleischman et al. 2014), in some scenarios poorly defined boundaries of mobile fishing resources serve as the key determinant rather than the exception; despite the principles, especially Principle 1B covering fishing resources (Gelcich et al. 2006).

This principle states the need to describe clearly both the physical dimension of the resource and the resource depends with the right to benefit from the property (Cox et al 2010). The SSF status examined for this research provides outright identifier that resource users should accomplish before they can be able to acquire recognition as potential user and qualifying for the associated rights to access fisheries. The fundamental indicator for access of rights is drawn from Law No.5 of that regulate the Somali Marine Fishers and that SSF's should register as legal members with respective cooperative, thus paying registration fees for their fishing boats, acquire explanation of the binding legal arrangements of fishing, payment of monthly membership fees in their representative Cooperatives. Fisherfolks require green light from the cooperatives committee and the contribution of time and physical participation to the continuity of cooperatives. As R1 states:

“As of regulations and general institutional arrangements are fully in place but there is the need to understand the current status of the country. There have been a lot of improvements and now that the government is FDS, take the licenses or registration aspect, now the Ministry has the power to manage only beyond 24 nautical miles, which means that FMS have the power to run the most of the inland activities. So far, SSF around Mogadishu coastal shores, the Ministry has

provided regulations and framework that mainly empowers efforts centering more of co-management/traditional like systems that have been in place. Therefore, matters reflecting the infrastructural arrangements of the sector are established”.

In general, there are clearly identified resource boundaries given the current Baidoa Agreement on Resource Sharing between Federal Government and Member states in accordance with the provisions of existing fishery laws. However, at Mogadishu level, SSFs entirely capture from every area to their capacity regardless of the stated stipulations; meaning that it is strongly required to establish advanced-level technical boundaries emanating from the institution setting. With the current Federal System, it is in this respect of governance where the Banadir Regional Administration-Mogadishu Municipality aided by the knowledge of fishers possesses the power to properly set the boundaries. The principle shows that SSF co-management that considers entire key stakeholders representation is essential to embrace resource boundaries utilizing scientific understanding of the resource systems and conditions of fishers.

4.1.1 Principle 2: Congruence with local conditions:

This principle outlines that rules in place corresponding to the time, place, technique, and level of resource exploitation should be in harmony with local conditions (Cox et al., 2010). It also stresses on status of potential cohesion between a set of institutions and a resource system (Ekstrom & Young, 2009); facilitating achievement proper resource utilization and collective action. The study explored how SSF is governed and how the management practices affect the resource systems. In SSF domain, this serves as important step to weigh how institutions reflect local resource dynamics.

Information from the study sites indicates existence of some form of congruence with rules, especially local regulations and conditions. According to the local fish cooperatives arrangements, there is a rule to guide avoidance of converging rights among the fishermen. For instance, during fishing activities, when a fisher occupies a certain zone for fishing and establishes their gears, other fishers are required to look for other areas or offer the fisher enough distance to ensure proper fishing pursuit. This aspect of respective zone avoidance is particularly effective during high seasons or periods where certain fish species can be concentrated in one location. This enhances the congruence between the laws and arrangements adopted and local

social settings and the associated environmental conditions. However, R4 expresses that:

“We ensure following these practices to maintain proper fishing activity but not for conservation perspective. We consider that observing such efforts will help us avoid inconsistencies and make it easy for us to ask help each other during times of need. We are doing all these because when dispute happens, it will cost us time, money, which is not a viable option for our survival. We go fishing even during nights of stormy weathers and extreme weather conditions. This is all but ensuring that we feed our families and the more we fish the higher the chances of sustaining of lives. It saddens us that, rather than obtaining required support, all we receive is alarming calls of bad weather during high monsoon winds instead of supplementing the information with alternatives means to sustain our livelihoods”.

During non-fishing days like holidays, fishers from both the study sites indicate that most of the fishermen go fishing even those days due to the livelihood difficulties and there is no particular restrictions in that sense. Moreover, in the event of high market demand, fishers alternately change sailing levels with other crews or increase crew members according to the size of the boat. On the other hand, aspects related to regulations enforced by the government in regards to the local conditions are to some extent evident, especially during strong winds and bad weather. However, other formal rules are merely engraved into the papers but do not follow the states provisions. Provisions covering protected zones restricting certain usage of gears within the specified areas developed to ensure preservation of spawning and nursery zones are in general inculcated into the minds of fisherfolks but all just end-up as word of mouth, since fishers catch species irrespectively and considering by-catch as nothing. R7 underscores;

“Well, let’s ask ourselves, are these SSF getting subsidies from the government or evident measures that address their problem. Therefore, they catch whatever they get in the net tend and nothing is regarded as by-catch. As you know, from time and again, fishermen were warned of capturing the sea turtles but they are adamant to catch these endangered species since it fetches a lot of cash. Therefore, unless the government provides alternatives or subsidies in return, no sanctions work”.

There is no enforced practical experience in terms of closed fishing or restricted zones to particularly reflect congruence or incongruence aspect of the case. Fishers’ state that the government and its rules negatively affect them because they are approached only when they are required to pay illegal fees, in which district commissioners unlawfully impose, while the burden

of Municipality is in place. Such cases serve as clear comprehension of the negative repercussion on both fishers and resources systems given the occurrence of imposed rules that contradict the local practices and resource conditions.

In this aspect, SSF governance ranges from cooperative fisheries that create their own local rules according to their common fisheries scale. SSF in Mogadishu, although they function under general regulation reflecting its status of being the country's capital city and administrative base for the central government, the concerned formal institutions empower and give the fishers' cooperatives to run their own daily activities: R7 explains that:

“Existing management features in the area is that they recognize the sector as lifeline not only for the dependent coastal communities but the whole of Mogadishu population. They cooperate in limiting maximum catch capacity, registration of boats and provision of applicable fishing licenses, landing and stock assessment and ways of improving the sector in general through appropriate enforcement measures”.

4.1.1 Principle 3: Collective-choice arrangements:

This principle states that resource users affected by operational rules can participate in changing those rules (Cox et al., 2010). Interviews with the officials from both formal institutions and local fishery authorities, and cross-examining with the existing legal documents, indicate the functioning of heterogenous form of management in Mogadishu but with more on top-down approach, making it as the proper representation and key characteristics of SSF governance in Mogadishu.

On the fish cooperative levels, members of respective fishermen choose the management committee executive individuals and the chairperson of the committee, and in turn the committees serve the fishermen by attending government meeting and other related activities to accordingly deliver the needs of the fishers. This establishes a system and process by which the entities impacted by the rules can take part in institution or altering them. The survey questions asked whether the fishermen possess the capacity to participate into the policy making or decision making processes related to the fishery resource usage, to project the level of fishers' recognition as key stakeholders across various activities affecting them.

However, R3 pictures the exact opposite of the principle, pointing out the following:

“During process of establishing policies or implementation of projects that touch our daily activities, or even times of exchange information within stakeholders, cooperatives participate in these regular meetings on behalf of us, but with no feedback at all. The government judges our long historical knowledge and observations of the sector through the lenses of cooperatives. Therefore, all we can do is to collaborate with cooperatives and deepen our relationship with other fellow fisherfolks on various realms and wish that that fishery resource conditions support us in the long-run”.

In regards to this Principle, the merits acquired by users from common-pool resource system, making use of their participation in collective action, as defined by appropriation rules, must correspond to amount supplied in the form of work, material, or financial, as outlined by provision rules (Ostrom 1990; Cox et al., 2010). Data from both study locations show that, with the current status of open-access resource system, the inexistence of control on fishing scale mainly surround the type of gears employed, boat owners with significant financial ability are welcome to double their fishing capacity and rip more benefits. On the other hand, fishers with smaller-sized vessels and also conduct their fishing activity with limited fishing gear are prone and more concerned of the large fishers, thus attracting conflict and distrust.

Needless to say, almost all of the respondents are worried and dissatisfied of the decreasing input of resource in the form of investment into the small-scale fisheries. The direct connection between investment and production in the study site is not an outcome of collective action but more of poor or inadequate clear appropriation and provision of rules activating fishing capacity, therefore functioning against this Principle.

A consistent data on the management responsibility levels for SSF was obtained, reflecting total absence of participation of fishers in the ways of active involvement into the decision-making irrespective of management level constituting consultative and cooperative co-management. The local fish cooperatives generally lead daily governance or management practices related to the decisions such as turning to different zones for capture, adjusting or discouraging the daily quota of fishing activities if resource conditions or market externalities are not stable enough, revealing

the functioning of adaptive management systems in this case. With this in mind, there is also clear understanding in this sense that users and formal institutions do not cooperate collectively on the same scale, due to the right of authorities to always possessing the ultimate decisions on the issues engaged.

For this reason, even though government claims offering the fish cooperatives with the power to run their own matter, the study does not ascertain or find Mogadishu SSF to be cooperatively managed or existence of any other level of properly supported self-governance systems. However, some form of direct cooperative levels of co-management was found among the local fish associations and the government during execution of capacity building or any other development projects. Therefore, study affirms that the existence of heterogeneous system of governance between instructive and consultative, since during participation into the decision making as co-management level, there are still rule dictation aspects in the process, especially matters related to achieve goals.

More importantly, though local fishery cooperatives governance is in place, fishermen needs are rarely discussed or tackled in respective meetings accordingly and thus, the level fisherfolks in participating meetings is extremely low. One of the fishers (R7) argues the following:

“We don’t really understand of what it means to have a voice over own matters. If we are represented well, in about 2 years now, we are expressing serious disease that contributed to the deaths of 7 scuba divers. We don’t know the cause, but all of a sudden, the fisherman becomes paralyzed; and in few days, pass away. The officials are aware of this pressing issue and we are not even invited at the meetings to raise these concerns let alone conducting investigations. ”

Fish migration and distribution condition affects the connection among fisherfolks. Fishers from both study sites express that distrust among is deteriorating, and cooperatives regulations or calls are nowadays less heeded, largely because of continued corruption grounded into the misappropriation of project funds or engage in preference of fishers over each other on the basis of relatives or clan connection, coupled with unstable livelihood due to resource decline. For instance, theft of fishes and fishing gear, and cheating about fishing scale and fished species, are

these days proliferating among SSF in Mogadishu. At the latter site, fishers also commented that fish exchange is less frequent than in the past, although it still occurs.

Fishermen from the study areas acknowledge the importance of forging strong connection and relationship among them to enhance the conditions of the sector. However, they state several obstacles to attaining that level of relationship, ranging from: (a) lack of incentives from the government; (b), demand for the endangered species, like turtles and sharks due to the associated social belief of containing high protein that aids manhood; (c) divergence of increased interests between fishers who depend fisheries as primary source of livelihood and those with secondary sources of income; (d) imbalance among fishers with limited or considerable inputs in boats and fishing gear; (e); endless corruption and nepotism among the management officials; and (f) unstable market conditions and fish price setting challenges.

Even though, cooperatives sometimes aid in adjusting selling prices and market dimensions, most of the fishermen directly sell their catch fresh at the landing sites directly to consumers, Fishers' perspective to directly engage with consumers, who compensate for fuel, cold storage, gear, and related needs, can therefore be regarded key drivers gauging the rise of collective action and competition for the fish resource. This principle is somewhat applied in Mogadishu SSF, but not completely due to the unilateral and unlawful imposed rules that are against with local conditions. This means that, fishfolks led by their cooperatives possess the right to create their local laws and regulations, given that they conform to the formal legal provisions set out by the government, thus producing unstable or weak relationships between resources and the fishermen.

4.1.1 Principle 4: Monitoring:

This principle advocates for users' behavior to be monitored, while monitors should be accountable to the users or are themselves (Cox et al., 2010). Required monitoring is still weak though the Ministry Fisheries and Marine Resources presents that industrial fishers provided with the licenses are monitored by trained team through satellite-based Vessel Monitoring System to counter vessels going against their licenses issues rules which is beyond 24 nautical miles of the coast (Baari, 2019); on Mogadishu SSF level, fish cooperatives serve as main

monitors verifying the smooth functioning and fish resource use. The fishery cooperatives possess some form of monitoring guidelines, including the employment of suitable fishing gears to monitor community-level appropriation, also overseeing individual users but fishermen rarely pay attention to the provisions. Respondents express that fishers are inactively engaged in monitoring due to dissatisfaction and complaints they possess of the attitude they receive from the government.

R4 points out that:

“I don't think we are at the right time to think about resource monitoring. We have yet to see any perpetrator punished for their unlawful acts. It will take a while to erect required monitoring practices. I believe it would be better to focus on efforts to tackle foreign illegal activities when it comes to monitoring of the sector since we cannot compete with their capacity.”

Monitoring of the sector is core aspect of common's governance. Beside, vessel tracking system used by the Ministry for monitoring, the Somali Coast Guard in collaboration with the department for fisheries of the local government deploys limited technical officers and personnel for monitoring due to significant limitations ranging from shortage of resources including financial and personnel, the size of the area required to be monitored, and limited data corresponding violation records. As a result, the lack of monitoring capabilities possesses hurdles to implement regulations outlined.

This principle invokes collective action. Fishers in Mogadishu together with their cooperatives carry out informal monitoring of resources, but the continual supervision regarding the fishery resources hardly delivered to the government authorities administering the monitoring and decision making, clearly presenting the consequence of ill-defined management system but more of top-down approach. Primarily, some of the respondents present fishers somewhat monitor rule compliance within their community level, but less concerned about the monitoring aspect emanating from the government regulations, meaning that the government should impose or enforce its rules.

Further, fisherfolks do not reveal violations caused by their counterparts if does not directly affect them, but one other hand, report endless uneasiness of the foreign vessels. Part of the

reasons why fishers do not want to observe monitoring process grounded in formal rules such as fishing licenses, gear restrictions, is that they blame government abandoning its own citizens by providing licenses to large-scale fishing industries while possessing inadequate enforcement capabilities.

As R2 voices that:

“You understand the complex and dark narrative surrounding the issue of monitoring of Somali fishery resources at large. This long, unattended coastline has been center for illegal fishing and source for industrial fleets that employed destructive bottom trawling techniques which in turn negatively affected our capture efforts. In response, piracy activities manifested and became a considerable blow for Somali waters. This piracy activity is absolutely unwanted act but to some level sent a message to the rampant illegal fishing efforts. We don’t consider fishing activities from other federal member states as illegal fishing. However, the same threat of external illegal fishing is facing us because this time round, the government is legalizing without even informing us by providing licenses to industrial fishing fleets with low capacity to monitor them.”

4.1.1 Principle 5: Graduated sanctions:

This principle as well leads to collective action, presenting that seriousness of the sanctions relies on the nature or degree of violations of community rules. This lowers violations recurrence while blocking community cohesion by refraining from unfair sanctions for insignificant violations (Cox et al., 2010). Researchers express diverse perspectives on whether this principle is relevant in areas with condensed social capital, as opposed to other camp that stress on its potential applicability (Cleaver, 2000). Though, the fishers recognize of the importance of imposing sanctions in the event of violations, however, the reduced capacity of enforcement and the fact that the sector is not of utmost top priority for the government makes it even hard to enforce apparent penalties for violations such as capturing endangered species.

R3 argues that:

“Simply, fishermen battle with daily livelihoods while institutions consider their interest above all else; this is what has been prevailing instead of implementation of standard regulations that could have been abided in the process of fishing methods, compensate losses, encourage teamwork and collaboration between stakeholders or take measure

against violation of rules and so on. To add on that, implementation of any existing provisions of law is of utmost importance but requires extensive prior informed process that encompasses inputs or understanding of stakeholders to communicate across benefits associated with conservation of the sector and fallouts resource manipulation. So long as fishers are neglected and government is infested with corruption, sanctions narrative is distant away”.

The Somali Fisheries Law clearly outlines penalties arise from capture of endangered species (such as sea turtles or sea mammals). However, sea turtles are daily brought at the landing site and openly sold at the fish markets with no repercussions. Research respondents raise that, capture of some sharks species and sea turtles are explicitly prohibited but the fishermen have no options but to daily struggle with livelihoods for which 1kg of them can fetch the cost of fuel spent. There are instances where sanctions are imposed by the government to include fines and fishing suspensions but due to deep clannism and corruption fishers successfully negotiate with the engaged officers to pardon the fines.

At the cooperative level, informal sanctions are applied upon occurrence of transgression. Nonetheless, these sanctions are not collectively initiated, and on top of that, they cannot be regarded as graduated sanctions. Sanctions can range from limiting information sharing, scolding, capacity building capacity programs and development, decreased market significance for the fish exchange, and among others. However, though community level sanctions function to some level, respondents express the need for effective formal rules sanctions. R4 indicates the following;

“Ever since the system of federalism began, it became difficult for us to go other regions to fish due to the nature of fish migration. In order to access these areas, we need to bribe or get a militia onboard to evade consequences. Fishers from Mogadishu are labeled as illegal fishers in other regions but the fisherfolks from other states can freely fish Mogadishu shores without any repercussions. During our fishing activities, we encounter unrecognized vessels that sometimes lead us to get trapped into disputes. No matter how many times we report, nothing is solved”.

4.1.1 Principle 6: Conflict-resolution mechanisms:

Conflicts associated with commons are unavoidable, and as a result, proper conflict-resolution mechanisms either within resource users or between users and authorities, is vital for collective action (Cox et al., 2010). The SSF in Mogadishu have been affected by the prolonged instability the country experienced for the past two decades. Glaser et al. (2018) states that, conflicts within Somali fishery communities usually emerge from uncontrolled competition for access of fishery resource. Research participants express conflicts occurring between fishers and formal institutions, also within fishermen grounded on theft of gears, usage of different gears and fishing spots; and finally between small-scale fisheries and large-scale fishers. The latter is what mainly contributed to the conflicts between domestic fishers and foreign vessels as a form of piracy (Glaser et al., 2018).

Study participants similarly underscore that fish cooperatives address conflicts between users regarding fishery resource access, and the daily complaints from fishery activities. Fishermen mainly turn to their respective cooperatives in resolving disputes among them. Disputes rarely reach formal offices to indicate effective conflict solution on a community level. This finding is inconsistent with Ostrom's argument pertaining merits accompanying the successful cases of community based common-pool resource management (Ostrom, 1990). Furthermore, respondent voice concerns of the lack of the stakeholder coordination to effectively tackle and solve the inevitable conflicts associated with SSF. According to R6:

“Our conflicts generally arise from anchorage activities. Mostly, anchorage locations are accumulated with vessels which are unattended coupled with boats dragging anchor while not showing proper lighting. Furthermore, I use scuba diving technique to capture high demanding bottom dwelling fish like shrimps. But, other fishers constantly accuse us of intercepting fish that could have entered their nets. In short, we present these conflicts to our elders for resolution. We never approach government for settling these matters because it just costs us time and money without fair justice at all.”

4.1.1 Principle 7: Recognition of the right to organization:

This principle underlines the importance of providing proper recognition by government authorities of a community's right to self-organize and establish rules that are suitable for local

conditions. On the other hand, when formal authorities fail to recognize a community's right to self-organize and unilaterally impose externally enforced rules; those rules may not meet with local conditions and can result poor governance realities (Cox et al., 2010).

The laws and regulation arrangements take roots into the principle of involving the fishermen in the governance system and acknowledging their right to manage their matters. The study respondents generally affirm that the government provides the right of Mogadishu SSF to run their own activities to indicate existence of some form co-management, but head fish cooperatives express the limited scale of this self-governance phenomenon. According to the findings, an informal co-management system is employed to govern the SSF in Mogadishu but the governance usually happens through a top-down management system. Swyngedouw (2005) concurs that, governance arrangements where the some institutions of the government are assumed in informal co-management form, potential inconsistency takes place in the models of governance that do not meet accordingly by transforming dull systems of autocratic few, protecting vested interest groups and the lack of transparency in the management in general.

The fishery cooperatives are formally recognized by the Ministry of Fisheries and Marine Resources, and their role clearly emphasized in the national fishery legislation. However, it's important to clearly identify governance system in the commons to counter challenges of weak stakeholder relations. Ghorbani and Bravo (2016) states that, commons pool-resource governance involving civil organization and government functions ineffectively, particularly when the government institutions capacity is inadequate or weak. In this case, the formal institutions are recovering from years of conflict, thus, the governance system in place should be accordingly defined to create balance between self-governance and the top-management approach. R8 outlines;

“In Somalia, the fishing activity is still considered as low-class profession and fishermen as low social- status group. On top of that, the sector is not accorded with the desired attention due to the capacity limited capacity, mainly of financial difficulties and political realities. This has invited poor cooperation and distrust among stakeholders. Although there is communication between the stakeholders, sometimes fishermen show lack of interest for collaboration. Simply, I believe these challenges coupled by mismanagement

rooted in corruption and self-interest makes co-management or self-organization processes difficult to realize currently.”

4.2 Chapter Summary

In this chapter, it was highlighted that the Mogadishu Small-Scale Fisheries governance system does not accordingly meet the framework of analysis for the thesis of Ostrom’s Eight Design Principles considered as the most suitable approach to assess effectiveness of an institution managing common-pool resources. In particular, this section succinctly discussed the answers to the research questions for the study. In reference to the first question “how are the small-scale fisheries in Mogadishu governed?”, the current management system implemented in Mogadishu SSF shows inadequate and inconsistency of fundamental governance arrangements indicating that despite formal institutions indicating that they offered the management right to the fish cooperatives to run their own activities in general. However, the data shows prevalence of top-down approaches for fisheries governance in the study area. Both data from the interview and the literature findings coincide that the lack of clearly identified governance systems can contribute to the failure of resources and its users as well (Asare & Okyere2012).

Applied Ostrom’s design principles provided understanding the existing governance realities and challenges to shifting implementation of well defined co-management system in Mogadishu small-scale fisheries, where hierarchical top-management style represent current governance practice. However, there are weaknesses of using Ostrom’s principles for this purpose, such as a lack of attention to social learning and the exclusion of external drivers. The research constitutes important step in analyzing Mogadishu small-scale fisheries from the perspective of commons-pool-resources, and presents that Ostrom’s design principles can be employed as a diagnostic and conventional tool for decision making or policy making projects in conditions where relevant formal institutions consider to implement co-management style, as in Mogadishu, Somalia.

CHAPTER FIVE

DISCUSSION

Ostrom's design principles constitute collective action and how users can manage common-pool resources (Ostrom, 1990). Can they also be applied to lead effective governance towards co-management? According to the results achieved from the study, the design principles can help assess conditions and offer guidance in the transition from top-down management to sustainable co-management, but with some limitations. Table 4 summarizes the prospects and setbacks facing successful implementation of co-management in Mogadishu small-scale fisheries by using some of Ostrom's (2009) multilevel framework indication. These indications are used to assess outcomes achieved in social-ecological systems to provide better depictions of realities to guide the illustration of my findings, especially the answer for the second question.

Studies on community management of common-pool resources over the past three decades discussed in the literature section show lessons that constitute effective institutions for natural resources. The eight design principles of Ostrom for successful governance systems deduced from researches of successful cases of stable and enduring organizations. Subsequently, numerous studies have assessed applicability of these design principles. One such works is the assessment of 91 cases (Cox et al., 2010) concluding that the design principles are clearly empirically supported with some aspects grounded into the commonalities evident in the studies. As such, these principles are regarded as a set of realities that can anchor the probability of maintain collective action in the long run, facilitate general compact of arrangements that cover two fundamental dimensions: the nature of activities that are impacted by the rule and ways to monitor and properly implement the rules.

However, with the empirical studies complementing Ostrom's framework, some concerns are raised that these design principles may not generally be suitable in all practical conditions or attached to particular area of commons (Cinner & Basurto, et al., 2012). Several recent studies analyzed applicability of these design principles in different areas with various tenure systems. For instance, a study on Peruvian anchovy fisheries found that only three principles among Ostrom's design principles were ideal for sustainability (Schreiber & Halliday, 2013). The conditions served viable transition towards the effective resource governance were clearly

defined resource boundaries, conflict resolution mechanisms among stakeholders and monitoring of rule enforcement. Their outcome indicates that high conformity to the principles exists in the fishery systems when it functioned in effective way, contrary to unsustainable practices.

5.1 Challenges Facing Current Small-Scale Fisheries Governance

Most of the crude setbacks surrounding small-scale fisheries governance in Mogadishu (as shown in Principle 4) are complexities centering dissatisfied resource users and poor governance system, necessitating the urgency for institutional arrangements involving stakeholders at multiple levels. Continuity of the current vague management system surrounding the resource units and its users, constitute the high need for effective cooperative approaches to management and condition amelioration (Armitage et al., 2009).

Factors discussed in principle three ‘collective-choice arrangements serve as key answers to the second research question of the study; “what factors of management systems are influencing the SSF governability in Mogadishu”; though it is not entirely cited as the main, but disputes and weak information sharing among stakeholder entities contribute to the weak governability of SSF (Pomeroy & Berkes, 1997; Plummer & FitzGibbon, 2004), and pose critical setback for the institutional arrangements (Napier et al., 2005; Pomeroy, 2007; Armitage et al., 2009).

Ostrom (1990) clearly identifies defined boundaries as intricate point for collective action; and this questions behaviors of fishers towards resource units. This means that tendency of fishermen in Mogadishu to move from one spot to another due to fish resource migration posed less impact on the governability. In addition, it is one key element rose in the study review and of fishers’ migration (Nunan et al. 2012). Nevertheless, various cases highlight significant impact of fisher’s mobility on cooperative management (Aburto et al., 2009; Njock & Westlund, 2010; Crona & Rosendo, 2011). Fishers movement instigate local governance participation as a tool to tackle external fishing, or negatively affect management due to the blend of resource users, stressing resource units (Crona & Rosendo, 2011). For this reason, this dilemma can be addressed through increased collaboration of all stakeholders delivering collective action.

5.2 Governance Factors

As authors Castro and Nielsen (2001) present, unclear governance practices activates process to unsustainable resource use and coercive policies that go against local norms or conditions. This state of ill-defined management practices and governance approach from the government affect the fishery cooperatives governance mechanisms due to the unwillingness, poor assistance and unexpected enforcements associated with current management approach of the government. The resource boundaries and access measures are clearly indicated in the Somali Fisheries Law (Law No.: 23 of November 30, 1985, Review 2016). However, observing the law possess significant challenge for the long-term sustainability of the sector.

The Somali Coast Guard which is responsible to enforce legal arrangements and tackle violations of whatsoever, but have yet to present successful execution of an example corresponding to the offense committed. This ineffectiveness of the coast guard is not the only factor failing the sector, but also the fishermen's attitude towards resource system. The fishermen are left with limited livelihood options and do not receive incentives from the government to balance their needs. In fact, fisherfolks lament that they government provides fishing permits to foreign industrial fishing companies that loot or engage in destructive fishing practices in which the government does not have the power to oversee their actions.

Because of inconsistencies related to fishing activities and increasing reduced catch, growing need to cultivate new avenues of livelihood or additional income for the SSF have recently gained momentum. For the fishers in both the case study sites for fishers who decide not to migrate seasonally benefit from development programs initiated by the formal institutions and NGOs through cooperatives. More importantly, stakeholders in the area show their concerns of catch decline and associated changes climate, in which they mostly reference to overexploitation from foreign fishing vessels, climate change, irregular seasons, use of old fishing techniques and poor data on fish stocks. These factors combined with fishing activities have affected the flourishing of some fish species such as certain endangered sharks and marine turtles due to their demand. Main fishing season for fishers in Mogadishu is September to December and January to May. The fishing activities in these seasons' ends up significantly poor compared to the levels of the last central regime. To support the needed capacity, fishers indicate that they sail to other

waters where the fish season is active showing of the changes to migration systems, in which fishers express that have not engaged in such movement years ago.

In this sense, fishermen who misbehave or engage in unwanted activities encounter limited repercussions and if they lose membership in one cooperative can join other potential ones. To strengthen and address aforementioned challenges surrounding SSF and their cooperatives, it is imperative for cooperatives and state institutions to redefine the appropriate management systems and accordingly implement successful co-management mechanisms. This can be coupled with evident assistance to the cooperatives in embracing modernizing traditional rules and daily operations. local governance constitute pivotal role in ensuring long-term sustainability of commons at community settings because these organizations have long been existing with resource units, ensuring resilience of resource systems, encouraging resource dependents to protect the resource, and addressing conflicts (Gutiérrez et al., 2011).

5.3 Relationship between current governance and Ostrom's design principle

The examination of Mogadishu SSF governance with the lenses of Ostrom's design principles helped in understanding of present challenges facing cooperative management of small-scale fisheries, and also efforts to accelerate sector's development. In accordance with the findings, there exists congruence between the design principles and the factors supporting effectiveness of commons management (Plummer et al., 2012). For instance, formal administration over resource use violation, Principle 4A of 'Monitoring rule enforcement' and Principle 5 'Graduated sanctions' is applied, while social dimension and stakeholder involvement in commons management, Principles 3 of 'Collective choice arrangements'; Principle 7 'Minimal recognition of rights to organize'; and Principle 6 'Conflict-resolution mechanisms' can holistically be referenced.

As mentioned in the literature, an essential debate on Ostrom's design principles for common-pool resources management is whether they can be harmonized and considered as a guidepost for sustainable governance (Cox et al., 2010). Hence, is important to underscore all the principles in a given case since specific analysis of the principles can only generate facts of mere glimpse. In this sense, it is better to employ design principles with the time lapse and changing conditions in

mind, and should be created or applied as dynamic stance (Gelcich et al., 2006; Yandle, 2008; Schreiber & Halliday, 2013).

With this caveat, the research attempted to follow this dynamism by assessing present governance change trends when analyzing the diagnostic principles, and by highlighting the prerequisites accompanying the conditions by identifying establishment of sound and well defined management systems with advanced support for local community governance. The data of the study show compliance with all of the principles. Beside Principle 8 (nested enterprise) which is not applied since it relates to common-pool resources closely connected to a larger social-ecological system, demanding governance activities establishment in multiple nested layers, data of the study shows compliance with all of other principles. However, Principle 1A (User boundaries) and 1B (Resource boundaries) required policy interventions due to the current political status of the country.

Precisely, modern cooperative management which can serve as a tool to solve problems, improving compliance levels, as findings support that this approach contributes to enhanced access to resource systems, strong equity in supply of costs and benefits, conflicts resolution mechanisms, improved decision-makings and information sharing, development of community connections, and effective management practices (Plummer et al., 2012).

5.4 Co-management in Mogadishu Small-Scale Fisheries

A study conducted by Secure Fisheries (2009) titled “the potential for fisheries co-management in the Somali region”, highlight case studies of co-management in some neighboring communities (Mkunguni of Kenya; Kigombe of Tanzania; Kiwirikwidge of Mozambique; and Robertsport of Liberia) with similar scale of fisheries in Mogadishu, thus concluding the ideal potential towards adopting defined modern co-management systems in Somalia. Therefore, Mogadishu SSF can synergize co-management approaches from the above successful case studies and activate fishery cooperatives in implementation processes to secure collective action capability. In achieving this mechanism, the current weak information sharing and collaboration efforts among the stakeholders will be solved along with efficient decision making process, and acknowledging the role of involving key stakeholders into the policymaking projects.

For instance, a study conducted in Chile showed that unstable government backed fisheries co-management policy downgraded community organization for some resources, weakening compliance with some of the principles (Gelcich et al., 2006). Though, the research shows the factors contributing to the present indifference attitude of fisheries towards participating in preserving the resource units, scholars such as Ostrom (1990), Berkes et al. (2001) and Schlager (2004) demonstrate the significance of involving fishers in decision making projects reflecting the areas of resource utilization techniques, monitoring and enforcement activities for the benefit of both resource users and the resource units in the long run.

Beside the existing formal recognition, the government should also provide financial assistance and direct development initiative for the cooperatives that could in turn accordingly carry out management, monitoring, reporting, and enforcement measures in the corresponding conditions (Kulmiye, 2020). Improving incentive opportunities and significant support to fishermen can increase mutual trust between fishers and the government, and towards the sector robustness. As a result, the collective action outcome required can only happen when such definitive brotherhood towards common interests and community's cohesion is initiated by the formal governance in place (Ostrom, 1990).

Indeed, the fishery cooperative's traditional management practices towards the sustainable utilization of the sector carries its demerits, as the fishers express. Reflecting on their arrangements can contribute to the answer of the third question which asks "how do local governance moderate the governance of SSF fishery?". Currently, Small-Scale Fishery Cooperatives in Mogadishu serve as the principal voice for the fishermen and accordingly managing the daily activities arising from the sector. The interviewees for the study affirm the cooperatives effort towards the engagement in proper management of fisherfolks affairs. Despite the evident challenges accompanying the SSF of its complexity, the gradual recovery of government institutions also constitute considerable setback for the sector. The primary function for the cooperatives is serving as trust fund or as insurance entity for the fishers under their umbrella.

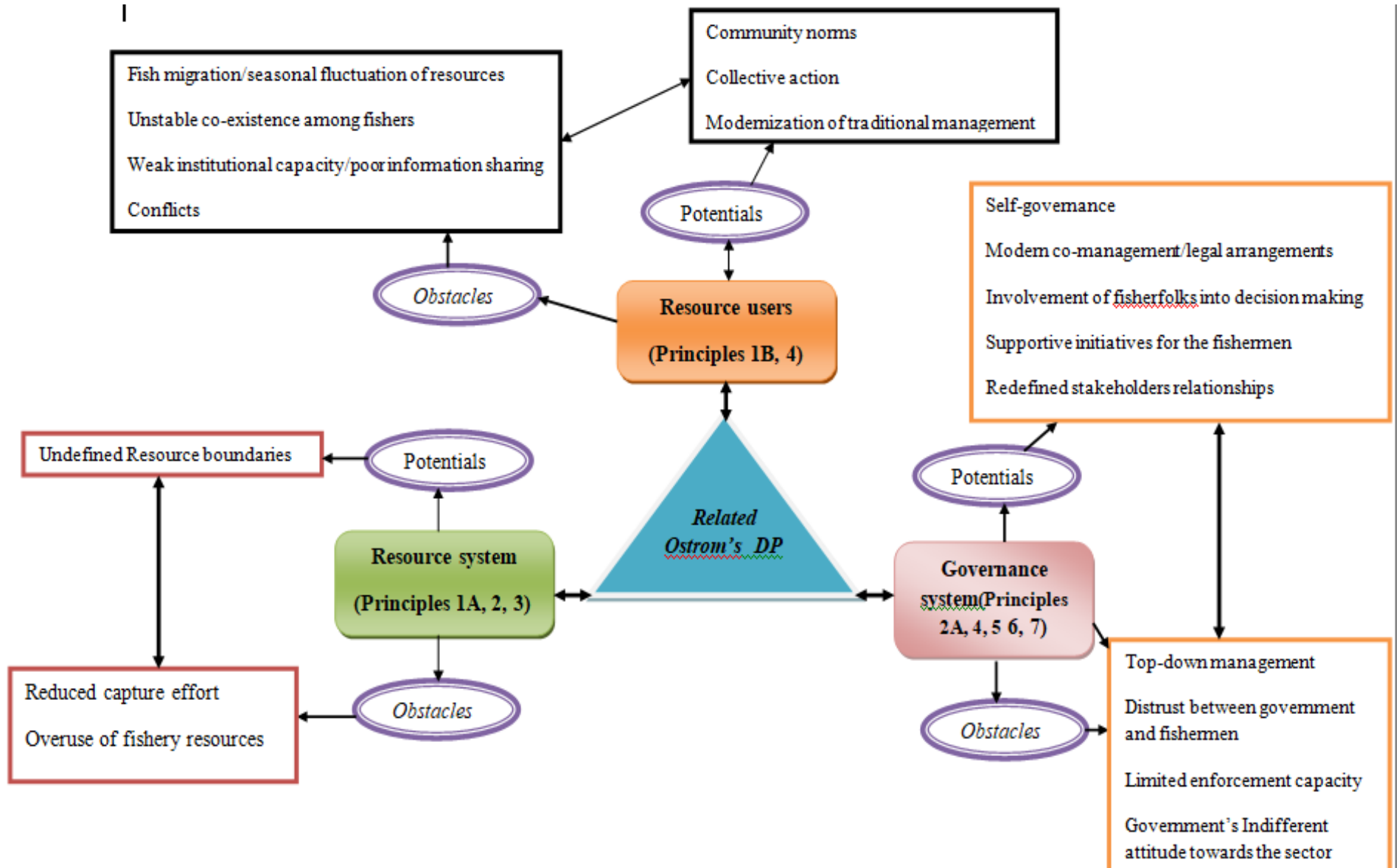
5.5 Gaps and Prospects

Ostrom's principles are primarily intended for internal than external factors thereby necessitating successful collective action (Cox et al., 2010). Therefore, the principles can be improved with assessing external derivatives such as unstable political environments (in this study, federal system and resource sharing between member states and federal government) fishing license permits preferring large-scale industrial fisheries over small-scale and climate change realities. As Berkes (2009; 2011) reveal, global dynamics such as ecosystem alterations, globalization and increased technological advancements significantly affect management of common-pool-resources. For this reason, modern cooperative management practices should comprehensively embrace firm understanding of external variables and drivers (Cox et al., 2010).

The research presented in this study assessed the governance dynamics of Mogadishu SSF through the lens of Ostrom's (1990) 8 design principles of natural-resource management. Moreover, governance consistency with Ostrom's design principles does not mean the same for the cooperative level of governance. Analyzing of the present management dynamics of SSF is also important to assess overall Mogadishu SSF governance. Disparity in organizational approach underscores the existence of potential failures that can threaten the health of the resource system and its governance structures. Below table summarizes the potentials and challenges in reference with aforementioned governance concern over Mogadishu's commons.

In addition, systems with functioning characteristics such as those pointed out by Ostrom's 8 design principles may not be able to level up with dynamics in socio-ecological realities. Sustainable cooperative governance is critical, and the speed and scale of change deem vibrant and consistent appreciation of stakeholders and revisiting of organizational arrangements. In short, the success of Mogadishu's SSF governance will primarily rely on ways the diverse players are willing and prepared to collaborate and communicate towards establishing responsive benchmarks for addressing the socio-ecological settings generated by the applications of cooperative management.

Figure 7: Potentials and obstacles surrounding small-scale fisheries co-operative management in Mogadishu



5.6 Role of Fish Cooperatives

There are close to 200 boats abandoned or moored along the coast of Urubo of Hamar Weyne because of the lack of appropriate gears or aging conditions. The cooperatives collaborate with the government in the process of provision of fishing permits to the fishermen in accordance with legal provisions in place outlining the boat size, utilization of appropriate gears and encouraging fishermen to engage in responsible fishing practices.

Due to the limited livelihood options, fishermen engage in fishing activities even during rough weather which could in turn result in loss of their lives or vessels. During these crises, the cooperatives intervene to assist in recovery process and offering new survival means from the ground. Furthermore, conflict prevails among fishermen, and in the event of such incidents, the cooperatives assume vital role in solving such issues before they escalate. The findings of the research clearly identify that the conflict resolution mechanism of the traditional governance so far effectively tackle misunderstandings and disputes daily arising from the fishery activities. The capacity of cooperatives is significantly limited and their daily operations are yet to be digitalizing to keep record of the needed data with the changing times. Technically, they mobilize fishermen and collaborate with the government and NGOs to enhance capacity of fishermen and increase awareness understanding of proper utilization of the sector.

Schlager (2004) argue, empowering community organizations with sound institutional capacities can serve to better utilization of commons. This contributes to fishermen's engagement in sustainable resource utilization of common-pool resources and enhanced monitoring efforts and rule enforcement by resource users (Pomeroy & Berkes, 1997). Needless to say, with the current political system and transitioning to Federal System, realization of co-operative management of SSF with strong fishery management cooperative arrangements is extremely faced with chains of setbacks. This is due to Mogadishu's status as the capital city of the country and serving as the hub of federal institutions which equip government with the tendency to resort to top-down management styles and preserve continued interest in the fishing industry.

Studies demonstrate the outcomes of facilitating ideal support mechanisms to fishermen and their communal settings. Ushering such kind of environment breeds trust and communal acceptance

among fishermen and reducing unhealthy competitions (Schlager & Ostrom, 1992). The potential to facilitate formal adoption of defined co-management system will improve resource user's attitude regarding conservation practices and the capacity to accordingly adapt to unstable resource conditions (Pomeroy & Berkes, 1997).

5.7 Impact of Chinese Fishing License Deal

Bilateral resource access agreements began as a response to intensifying international competition for fish, as well as a realization that fish stocks were being depleted due to inadequate management, thereby contributing to ratification of UNCLOS in 1982 that provided coastal countries and island states with the ownership of, and exclusive right for seas expanding to 200 miles- Exclusive Economic Zone (EEZ) from their respective shorelines. UNCLOS convention offered a space where foreign industrial fishing and coastal states had to negotiate access right among them. However, because of limited capacity to sufficiently tap their own marine resource potentials, emerging countries embarked process to market fishing permits to industrialized nations. Further, these activities facilitated growth of fisheries access agreements that gave rights to foreign boats in exchange for yearly paid income or onetime payment scheme for a given period. Many states, these access rights constitute opportunity to increase the economic benefits associated with their marine resources (Viridin et. al., 2019).

Several resource conservationists underscore that marine fishery agreements are increasingly receiving significant attention due to competition between developed nations, primarily emanating from overcapacity in world fishery stocks. It is important to note that successful access agreements can fetch required foreign exchange earnings that can in turn utilized to improve infrastructure to anchor development, domestic management of fisheries and supporting local fishing businesses. On the other hand, countless analysts reiterate that favoring large scale commercial fishing over small-scale fisheries is inexpedient for healthy fisheries and development. However, many fishing permits are translating otherwise in several developing countries since it is a process largely fueled by deep incentives on both sides to ensure their short-term gains. For instance, it is noted that access contracts can pose negative impact on the internal governance of fisheries, thus leading to destructive fishing practice and the marginalization of domestic fishermen (Bergman, 2021).

The amount of funds channeled to African countries through these marine fisheries agreements is mainly guided by the extent of permits they provide to foreign countries as more fishing boats are granted access to fish in their seas in expectation of large returns. Therefore, numerous access agreements contributed to the licensing of too many vessels and in turn has weakened the proper management of fisheries. In West Africa for instance, Chinese fishing fleets have long been blamed for depleting stocks, utilizing unclear ways to acquire licenses, and jeopardizing the livelihood of local fishers (FCWC, 2020).

Standing (2011) argues that the worldwide trend of fisheries management failure, and the poor state in marine productivity is uncovering secrecy and inexistent accountability which is pure label of failed fisheries governance in many regions. Several such cases can be observed in some African countries in order to accordingly shape the prospect of Somalia's access agreement with China. For example, according to a survey completed in several Western African countries and some from East Africa late 2011 indicates that, in Guinea's fishery law prohibits large scale fishing vessels from trans-shipping marine catches at sea but Chinese boats functioning under the government access license are not applied this law and it's at their free will to transship catches in any areas they want; whereas in Mozambique sense that non-existent and weak access agreement laws which can be justified by the increasing China's economic significance in the country.

Further, in early 2020, several Senegalese fisheries stakeholders, comprising small-scale fishermen, commercial shipowners and civil society organizations protested against government to issues related to licensing of Chinese vessels to capture pelagic fish species (Philippe, 2020). Similarly, in late 2000, Mauritania's parliament revealed a document to local NGOs which indicated a 25 years fisheries agreement granted to Chinese state fishing company, that allowed 50 industrial fishing vessels to access Mauritania's marine fishing areas-a country lingering with years of unsustainable fishing, resulted by weak access regulations (Ilnyckyj, 2007). In addition, Brown (2021) states that Chinese-owned fishing companies cheated the Ghanaian government out of millions of dollars a year in fishing license revenues. Unfair competition among foreign and domestic fishing for deteriorating resources can result to the heightened occurrence and intensity of conflict between the fishing boats as local fishers will need to advance further out to

offshore waters to fish as stocks diminish from large-scale commercial fishing (Devlin et al., 2020).

Somalia provided fishing licenses to 31 Chinese vessels to exploit tuna and tuna-like species off its coast in an effort to spur economic growth. The vessels are linked with the China Overseas Fisheries Association, a distant-water trawling group established in 2012 to enhance China's competitive fishing pursuit abroad. According to the agreement, the fleets will not be permitted to fish between 24 nautical miles to the offshore side for the purpose of protecting small-scale fishing activities. Further, with the help of vessel tracking system, the boats have to declare their positions regardless of the weight of catch on board by species (Baare, 2019). The concern about the agreement is that it could again heighten risks of small-scale fishers to engage in unlawful activities such as piracy. This is because the piracy incidents that proliferated along the waters of Somalia several years back was largely due to unemployment, poverty, and frustrations about illegal fishing.

Fishermen claim that, if the government is keen to promote economy, it should encourage the Chinese companies to open up their factories in Somalia. In this way, jobs will be generated, local economy improved while the government can oversee the production and fishing activities of these Chinese companies (Dahir, 2018). For this reason, this access agreement will not only constitute overexploitation practices and unaccounted activities but can also be a breeding ground for conflict. This is because; local fisheries are already suffering from lack of government investment, weak fishing equipment and extreme illegal fishing by foreign fishing boats.

5.8 Chapter Summary

Applying this theoretical framework has helped the research to identify the current government centric governance, a tendency seen in many other settings where CPR governance is often prevailed by a top-down approach, which further corners marginalized communities. SSF governance in Somalia has been weak and none of Ostrom design principles have been adopted; and the use of the DPs suggest the need to implement a more holistic, collaborative style, which offers fisherfolks potentials to engage productively in co-management of SSF governance in

their communities, and attain trust, equity, and towards sustainable resource systems governance. On the other hand, the DPs do not directly consider external drivers; and instead focus on internal factors contributing to effective cooperative management, thus requires support from further analysis of external factors such as regulation or arrangements established under various levels of institutional structures undergoing significant transition. Precisely, policies of formal institutions experiencing recovery from years of conflict that more or less impact government policies in general, leading to prioritization of pressing sectors and leaving others unattended. In addition, DPs indicate that entities benefiting from the same resources as local people but at a different dimension constitute an eminent, but repeatedly overlooked external driver impacting successful co-management.

In summing up, Ostrom's design principles facilitated the identification of prospects and obstacles to implementing effective co-management of small-scale fisheries in Mogadishu, where government's top-down management is still the main management style. The downside of these DPs is that they pay inadequate attention to social learning and external factors. Nevertheless, Ostrom's principles can be utilized as a diagnostic and prescriptive method for policy in environment where formal institutions eye adopting co-management. According to the analysis of these DPs, cooperative management systems that bring together relevant stakeholders at various levels can contribute to minimizing conflicts among them and build strong co-management governance, improve compliance with the principles and resource sustainability, and this what the present SSF governance style in Mogadishu is deficient of.

CHAPTER SIX CONCLUSION AND RECOMMENDATION

This section provides summary of the findings of the study and makes recommendations that could be taken up by policy makers. Particularly, the conclusions are reached in accordance with the research objectives which are: to assess the governance of Mogadishu small-scale fisheries, factors affecting the present governance of the sector while examining how cooperatives are moderating the governance of the sector.

6.1 Conclusion

Small-scale fisheries are complex socio-ecological system that constitutes considerable management challenges. It is difficult to manage and maintain fisheries at large due to the complex, diverse and dynamic nature of the resources (Mikalsen, Hernes & Jentoft 2007). Successful fisheries management considers three factors; the resource itself, the resource consumers (fisheries communities) and the resource management authorities (McClanahan & Castilla 2007). As a result, various management approaches appeared; but interweaving traditional and modern system of governance is widely employed by policy makers and public managers involved in common-pool-resource.

The fundamental in fisheries management is grounded in the perspective that the collective action for sustainable resource use will simultaneously benefit the fishers: when a Tragedy of the Commons can be avoided by reducing fishing effort, the fishers are secured of a stable income from fisheries and thus benefit. This offers resource users room to participate in policy-making processes in establishing transparent and community appropriate rules that equip fishers with flexibility to engage changes during difficult periods (Finkbeiner & Basurto, 2015).

In this research, by investigating present status of SSF governance in Mogadishu through primary case study, I analyzed the ideal conditions for effective and healthy commons management approach by reflecting on the governance success of other countries, in particular cooperative management style. My research was conceptualized along Hardin's theory of Common-Property Resource Management with application of Elinor Ostrom's '8 Design

Principles' framework to understand the interplay between the functioning formal and informal governance in Mogadishu's SSF.

As per the findings, unstable and undefined cooperative management approaches in Mogadishu can be termed as unhealthy practice for the long-term sustainability of the sector. For this reason, it is of paramount importance to redefine and implement holistic fisheries' policies that accordingly delivers modernized co-management. Small-scale or artisanal fisheries make an important contribution to food security, sustainable livelihoods and poverty alleviation of coastal areas; and due to this fact, it is high time that government and international community scale up measure to maximize the potentials of sector by providing needed attention to the fishermen and their resource units (Roberts et al., 2019).

The fish cooperatives are fit to preserve local fishery activities from the direct fallouts of daily fishing operations with the good example of long-standing traditional processes. In this sense, it is as well essential to understand cooperative management style as a means to solidify adaptive potential for changing socio-ecological conditions and mechanisms to solve human pressures, and a swift response to the present open-access condition. The Somali Fisheries Law and subsequent legal arrangement have yet to curb present open-access condition with defined boundaries that can eliminate unwanted resource utilization. However, the only gateway is strengthening cooperative's capacity and the fishermen's status to achieve cohesive dynamics fishery community. Disparity in organizational approach underscores the existence of potential failures that can threaten the health of the resource system and its governance structures.

In addition, systems with functioning characteristics such as those pointed out by Ostrom's 8 design principles may not be able to level up with dynamics in socio-ecological realities. Sustainable cooperative governance is critical, and the speed and scale of change deem vibrant and consistent appreciation of stakeholders and revisiting of organizational arrangements to increase capability for self-organization. In short, the success of Mogadishu's SSF governance will primarily rely on ways the diverse players are willing and prepared to collaborate and communicate towards establishing responsive benchmarks for addressing the socio-ecological settings generated by the applications of cooperative management.

6.2 Recommendations

However, with the empirical studies complementing Ostrom's framework, some concerns are raised that these design principles may not generally be suitable in all practical conditions or attached to particular area of commons (Cinner & Basurto, et al., 2012). Further, authors like Schlager and Ostrom (1992) indicate that these approaches for conserving commons generally imply as trial-and-error process. For this reason, the study does not infer that these recommendations will serve as the absolute answers for the existing complexities surrounding governance of the interplay between resource users and resource units in Mogadishu SSF, however, the outlined points can be used to support efforts towards transition to sustainable modern co-management. Future research may assess current findings in comparison with modern cooperative management approaches when implemented in Mogadishu in line with changing conditions, what co-management results are generated and how compliance with Ostrom's principles is enhanced.

I argue that some of the important conditions for co-management are often evident to some extent, but are not implemented accordingly due to transitioning state of the government structure and also issue emanating from the unwillingness towards collective action, financial difficulties, inadequate institutional capacity and legal provisions, limited group cohesion, and poor cooperation between the government and local stakeholders. Modernizing the existent conditions of co-management along with successful cases from countries in similar scale can constitute considerable leap in effective implementation of cooperative management in the future. Therefore, it is essential to continue investing in measures or policies that support sustained group cohesion such as fishery cooperatives and mending weaknesses facing them. The concerns of the fishery cooperatives clearly suggest the high need to embrace modern practice of co-management that accordingly reflects the social, economic and cultural background of their natural systems. As a result, the present unstable and undefined co-management should be first started with consultative arrangements that will drive institution building and governance that will establish sound contemporary co-management system built upon the theoretical framework of CPR, thus contribute to sustainability SSF in Mogadishu.

That said, in observing ways the cooperatives managed affairs of the fishermen, especially

conflicts over resource use, it is apparent that efforts of local fishers only lack the required support, thus, it is fair to say that their long-standing traditional ways can serve as a viable option for addressing social and ecological change within SSF in Mogadishu, given the right attention is provided. Further, findings of the study suggest that engagement of stakeholders and empowering the local community governance and subsequent incentive opportunities to fishermen can help lower transgressing regulations of resource use and monitoring enforcement laws, conflicts among fishermen and, strengthening compliance with the principles and fisheries sustainability.

Future research may assess current findings in comparison with modern cooperative management approaches when implemented in Mogadishu in line with changing conditions such as what co-management results are generated and how compliance with Ostrom's principles is enhanced. As noted in Ostrom's principles do not directly consider external factors. In summary, the research provides specific recommendations below:

- It is important to have well defined-legal arrangements backed by strong institutional frameworks as one of the study participants recounts: “...*implementation of the existing laws require well defined legal provisions that are in harmony with present government structure. These arrangements should consider primary stakeholders in any phase of regulation or project establishment in respect to conservation of fishery resources. Unless such legal aspects that recognize coastal communities accordingly are adopted, the sector will never be in shape*”.
- The government should give the SSF sector the attention it demands, and especially involve fishermen into the decision-making process regardless of the scale of the project.
- There is no resource that flourishes without constant monitoring assessment and effective solid enforcement mechanisms. Therefore, efforts towards facilitating such capacity should be prioritized, beginning with improved collection action.
- At local level, the fish cooperatives should refrain from nepotism or corruption in the process of implementing development programs to win the will of the fishermen.

References

- Aburto, J, Thiel, M. & Stotz, W. (2009). Allocation of effort in artisanal fisheries: the importance of migration and temporary fishing camps. *Ocean and Coastal Management* 52(12): 646–654.
- Anderies, J. M., Janssen, M. A., & Ostrom, E. (2004). A framework to analyze the robustness of social-ecological systems from an institutional perspective. *Ecology and Society*, 9(1), 18. <http://www.jstor.org/stable/26267655>
- Schreiber, A., M., & Halliday, A. (2013). Uncommon among the commons? Disentangling the sustainability of the Peruvian anchovy fishery. *Ecology and Society* 18(2), 12. <http://dx.doi.org/10.5751/ES-05319-180212>.
- Armitage, D. R., Plummer, R., Berkes, F., Arthur, R. I., Charles, A. T., Davidson-Hunt, I. J., Diduck, A. P., Doubleday, N. C., Johnson, D. S., Marschke, M., McConney, P., Pinkerton, E. W., & Wollenberg, E. K. (2009). Adaptive Co-Management for Social-Ecological Complexity. *Frontiers in Ecology and the Environment*, 7(2), 95–102. <http://www.jstor.org/stable/25595062>
- ASCLME. (2009). Coastal livelihoods in the republic of Somalia. Retrieved from <https://www.iwlearn.net/resolveuid/3305deea3724548e9155b93e4313f99f>
- Asare, N. K., & Okyere, I. (2012). Profitability of small-scale fisheries in Elmina, Ghana. *Sustainability* 4, 2785-2794. doi:10.3390/su4112785
- Anuchiracheeva, S., Harvey, D., Ganesh, P., S., & Kenneth, R. (2003). Systematizing local knowledge using GIS: Fisheries management in Bang Saphan Bay, Thailand. *Ocean & Coastal Management* 46 (11-12): 1049–68. doi:10.1016/j.ocecoaman.2004.01.001.
- Baari, H. (2019, March 15). Somalia issues fishing licenses: Fees will help develop fisheries sector. Ministry of Fisheries and Marine Resources: Mogadishu, Somalia.
- Babu, R. G. (2016). *Research methodology in social sciences*: India: ConceptPublishing Company
- Beddington, J. R., Agnew, D. J., & Clark, C. W. (2007). Current problems in the management of marine fisheries. *American Association for the Advancement of Science*, 316(5832), 1713-1716. DOI:10.1126/science.1137362
- Bergman, J. (2021, April 22). China's fishing fleet is vacuuming the oceans. Gatestone Institute: International Policy Council. Retrieved from <http://www.gatestoneinstitute.org/17297/china-fishing-fleet>
- Berkes, F.(2007). Community-based conservation in a globalized world. *Proceedings of the National Academy of Sciences of the United States of America* 104 (39), 15188-93.
- Berkes, F. (2003). Alternatives to conventional management: Lessons from Small-Scale Fisheries.” *Environments* 31 (1).
- Berkes, F., Mahon, R., McConney, P., Pollnac, R. & Pomeroy, R. (eds.) 2001. Managing small-

scale fisheries: Alternative directions and methods. Ottawa: International Development Research Centre. 320 pp.

Béné, C., Hersoug, B., & Allison, H., E. (2010). Not by rent alone: Analysing the pro-poor functions of small-scale fisheries in developing countries.” *Development Policy Review* 28 (3), 325–58.

Béné, C., Macfadyen, G. & Allison, E. H. (2007). *Increasing the contribution of small-scale fisheries to poverty alleviation and food security*. Fisheries and Aquaculture Technical Papers 481, Rome: Food and Agriculture organization, 141 pp.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford, 373-374.

Bromley, D. W. (2016). Rights-based fisheries and contested claims of ownership: Some necessary clarifications. *Marine Policy* 72, 231–236. <https://doi.org/10.1016/j.marpol.2016.07.002>.

Brondizio, E. S., Ostrom, E., & Young, O. R. (2009). Connectivity and the governance of multilevel social-ecological systems: The role of social capital. *Annual Review of Environment and Resources* 34 (1): 253-278.

Brown, S. (2021, March 30). Chinese fishing companies cheat fishing license in Ghana. Organization Crime and Corruption Reporting Project (OCCRP). Retrieved from <https://www.occrp.org/en/daily/14133-report-chinese-fishing-companies-cheat-fishing-license-in-ghana>

Castro, A., P., & Nielse, E. (2001). Indigenous people and co-management: Implications for conflict management. *Environmental Science & Policy* 4(4-5) 229–239

Cinner, J.,E., MacNeil, M.,A., Basurto, X., & Gelcich, S. (2013). Looking beyond the fisheries crisis: Cumulative learning from small-scale fisheries through diagnostic approaches. *Global Environmental Change*, 23(6). pp. 1359-1365. 10.1016/j.gloenvcha.2013.11.001

Coates, D. (2002) Inland capture fishery statistics of Southeast Asia: current status and information needs. RAP Publication No. 2002/11, Asia-Pacific Fishery Commission, Bangkok, Thailand.

Cochrane, K., De Young, C., Soto, D., y. & Bahri, T. (2011). Climate change implications for fisheries and aquaculture: Overview of current scientific knowledge. [FAO Fisheries and Aquaculture Technical Paper. No. 530]. Rome, FAO. 212p.

Cox, J. (2012). Assessment report on small-scale fisheries in Africa. Masifundise Development Trust for AU-IBAR. Retrieved from [https://www. AU-Report_Africa.pdf](https://www.AU-Report_Africa.pdf) (masifundise.org)

Cox, M., Arnold, G., & Tomás, S.V. (2010). A Review of Design Principles for Community-based Natural Resource Management. *Ecology and Society* 15 (4), 38.

Crawford, S. & Ostrom, E. (1995). A grammar of institutions. *The American Political Science Review* 89 (3), 582-600.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. 3rd Edition, Sage, Thousand Oaks.

Crona, B, & Rosendo, S. (2011). Outside the law? Analyzing policy gaps in addressing fishers' migration in East Africa. *Marine Policy* 35 (3), 379–388.

Dahir, A., L. (2018). China will start fishing along Somalia's coastline just as piracy makes a comeback. QURTZ AFRICA. Retrieved from <https://qz.com/africa/1506419/somalia-gives-fishing-license-to-31-china-vessels/>

Denscombe, M.(2002). *Ground rules for good research*. Philadelphia: Open University Press.

Devlin, C., Glaser, S., M., Villegas, C. & Poinsette, N.(2020 January 28). Rough seas: The causes and consequences of fisheries conflict in Somali waters. Secure Fisheries. Retrieved from <https://www.securefisheries.org/sites/default/files/Rough%20Seas-fisheries-conflict-somali-waters.pdf>

Doulman, D.J.(1995). Fishery Policy and Planning Div. eng; Workshop on the implementation of the 1995 FAO Code of Conduct for Responsible Fisheries in the Pacific Islands: A call to action eng 27-31 Oct 2003 Nadi (Fiji); FAO, Rome.

Dietz, T., Ostrom, E. & Stern, P.C. (2003). The struggle to govern the commons. *Science* 302(5652), 1907-1912.

Drummond, M. (1996). *The social construction of masculinity as it relates to sport: An investigation into the lives of elite male athletes competing in individually oriented masculinized sports*. Unpublished Doctoral thesis, Edith Cowan Uni-versity, Perth, Australia.

Erratum: Governing marine protected areas in an interconnected and changing world. (2015). *Conservation Biology*, 29(2), 607–610. <http://www.jstor.org/stable/24482671>

Esterberg, K. (2002). *Qualitative methods in social research*. McGraw Hill, Boston.

Evans, L., Cherrett, N., and Pemsil, D. (2011). Assessing the impact of fisheries co-management interventions in developing countries : A meta-analysis. *Journal of Environmental Management* 92 (8), 1938–1949. <https://doi.org/10.1016/j.jenvman.2011.03.010>

Fisheries Committee for the West Central Gulf of Guinea (FCWC). (2020 January 20). Mozambique's fishermen point to China as fish stocks dwindle. Retrieved from <https://www.fcwc-fish.org/other-news/mozambiques-fishermen-point-to-china-as-fish-stocks->

dwindle

Farah, L. I. (2020, December). *Analysis of the most common commercial fish species found in Mogadishu coast, Somalia* [Conference Paper]. 6th International Students Symposium: Sakarya, Turkey.

FAO. (2014). *The state of world fisheries and aquaculture 2014*. Food and Agriculture Organization: Rome, Italy.

FAO. (2012). *The state of world fisheries and aquaculture 2012*. Food and Agriculture Organization: Rome, Italy.

FAO. (2011). *The state of world fisheries and aquaculture 2011*. Food and Agriculture Organization: Rome, Italy.

FAO. (2010). *The state of world fisheries and aquaculture*, FAO, Rome.

FAO. (2009). *The state of world fisheries and aquaculture*, FAO, Rome.

FAO. (2007). *The state of world fisheries and aquaculture 2006*. Food and Agriculture Organization: Rome, Italy.

FAO (2005). *Fisheries and aquaculture profile Somalia: National fishery sector overview*. Retrieved 10 January 2010, 2010, from http://www.fao.org/fishery/countrysector/FI-CP_SO/en.

Finkbeiner, E. M., & Basurto, X. (2015). Re-defining co-management to facilitate small-scale fisheries reform: An illustration from northwest Mexico. *Marine Policy* 51, 433–441. <https://doi.org/10.1016/j.marpol.2014.10.010>

Fleischman, F.D., Ban, N. C., Evans, L.S., Epstein, G., Garcia-Lopez, G., & Villamayor-Tomas, S. (2014). Governing large-scale social-ecological systems: lessons from five cases. *International Journal of the Commons* 8(2), 428–456.

Gartside, D.,F., & Kirkegaard, I. R. (2009) A history of fishing. In: Equires VR (ed) *The role of food, agriculture, forestry, and fisheries in human nutrition*, vol 2. EOLSS Publishers, Paris, pp 105–139.

Gelcich, S., Edwards-Jones, G., Kaiser, M. J., & Castilla, J. C. (2006). Co-management policy can reduce resilience in traditionally managed marine ecosystems. *Ecosystems*, 9(6), 951–966. <http://www.jstor.org/stable/25470394>

Garcia, S.M. & Charles, A.T. (2008). Fishery systems and linkages: implication for science and governance. *Ocean and Coastal Management* 51: 505–527.

Gerring, J. (2004). What is a case study and what is it good for? *The American Political Science Review*, 98(2), 341–354. <http://www.jstor.org/stable/4145316>

Ghorbani, A., & Bravo, G. (2016). Managing the commons: A simple model of the emergence of institutions through collective action. *International Journal of the Commons* 10 (1), 200-219. doi:10.18352/ijc.606.

Glaser, S. M., Devlin, C., Lambert, E., J., Villegas, C., Poinssatte, N. (2018). Fish wars: The causes and consequences of fisheries conflict in Tanzania. <http://dx.doi.org/10.18289/OEF.2018.033>.

Glaser, S.M., Roberts, P.M., Mazurek, R.H., Hurlburt, K.J., & Kane-Hartne, L. (2015). *Securing Somali Fisheries*. Denver, CO: One Earth Future Foundation.

Goodwin, W. L., & Goodwin, L. D. (1996). *Understanding quantitative and qualitative research in early childhood education* (Vol. 59). Teachers College Press.

Griffin, R. W., & Moorhead, G. (2013). *Organizational behavior: Managing people and organizations* (11th ed.). Mason, OH: Cengage Learning.

Gutiérrez, N.,L., Hilborn, R., & Defeo, O. (2011). Leadership, social capital and incentives promote successful fisheries. *Nature* 470(7334), 386–389.

Hancock, B. (2002). *An Introduction to qualitative research*. Nottingham, UK: Trent Focus Group.

Hanna, S. S. (1999). Strengthening governance of ocean fishery resources. *Ecological Economics*, 31(2), 275-286. doi.org/10.1016/S0921-8009(99)00084-1.

Hara, M., and Nielsen, J. (2003). Experiences with fisheries co-management in Africa. In D. Wilson, J. Nielsen, and P. Degnbol (Eds.), *The Fisheries Co-Management Experience: Accomplishments, Challenges and Prospects* (pp. 81–97). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Hardin G. (1968). The Tragedy of the Commons. *Science* 162, 1243-1248.

Hassan, K. (2011). A review of Somalia's (& semi-autonomous regions) fisheries legislation & management. Retrieved from <https://www.fao.org/3/az381e/az381e.pdf>

Hauck, M. (2008). Rethinking small-scale fisheries compliance. *Marine Policy* 32 (4), 635–42. doi:10.1016/j.marpol.2007.11.004.

Hilborn, R. (2007). Defining success in fisheries and conflicts in objectives. *Marine Policy* 31, 153-158.

Hilborn, R., Branch, T., A., Ernst, B., Magnusson, A., Minte-Vera, C., V., Scheuerell, M., D. & Valero, J. L. (2003). State of the world fisheries. *Annual Review of Environmental and Resources* 28, 359–99 doi: 10.1146/annurev.energy.28.050302.105509

Ilnyckyj, M. (2007). The legality and sustainability of European Union fisheries policy in West

Africa. MIT International Review, Spring.

Isaacs, M. (2013). Small-scale fisheries governance and understanding the snoek (*Thyrsites atun*), supply chain in the Ocean View fishing community, Western Cape, South Africa. *Ecology and Society* 18(4): 17. <http://dx.doi.org/10.5751/ES-05863-180417>

Jentoft, S., & Chuenpagdee, R. (2015). The ‘new’ marine governance. Reality or aspiration. In M. Gilek & K. Kern (Eds.), *Governing Europe’s marine environment: Europeanization of regional seas or regionalization of EU policies?* London: Ashgate Publishing.

Jentoft S, Chuenpagdee, R. (2009). Fisheries and coastal governance as a wicked problem. *Marine Policy* 33(4), 553–560.

Jentoft, S. (2000). The community: A missing link of fisheries management. *Marine Policy* 24 (1),53–60.

Jentoft, S., McCay, B., J. & Wilson, D.C (1998). Social theory and fisheries co-management. *Marine Policy* 22 (4–5), 423–436. [https://doi.org/10.1016/S0308-597X\(97\)00040-7](https://doi.org/10.1016/S0308-597X(97)00040-7).

Jones, E., Timothy, G., & Chanin, U. (2010). Small-scale fishing: Perceptions and threats to conserving a livelihood in the province of Phang-Nga, Thailand. *Environment Asia* 3 (1), 1–7.

KAALO. (2017). KAALO’s experience in the fisheries sector in Puntland, Somalia. KAALO Aid and Development Organization. Retrieved from [https:// www.kaalo.org/wp-content/uploads/2017/11/Kaalo-and-Fisheries.pdf](https://www.kaalo.org/wp-content/uploads/2017/11/Kaalo-and-Fisheries.pdf)

Kanjee, A. (1999). Assessment research. In: Terre, M. & Durhei, K. (eds). *Research in Practice*. Cape Town: University of Cape Town Press.

Kittinger, J. N. (2013). Participatory fishing community assessments to support coral reef fisheries co-management. *Pacific Science* 67 (3), 361 – 381.

Klain, S., C., Beveridge, R., & Bennett, N. G (2014). Ecologically sustainable but unjust? Negotiating equity and authority in common-pool marine resource management. *Ecology and Society* 19 (4). doi:10.5751/ES-07123-190452.

Kooiman, J.P., Bavinck, M., Chuenpagdee, R., Mahon, R., & Pullin, R.S. (2008). Interactive governance and governability: an introduction. *The Journal of Transdisciplinary Environmental Studies* 7, (1).

Kulmiye, J. A. (2020, May). Somalia fisheries: Untapped potential held back by skills shortage. The Heritage Institute for Policy Studies, City University of Mogadishu. Retrieved from <https://www.heritageinstitute.org/wp-content/uploads/2020/06/June-2020-FISHERIES-REPORT.pdf>

Kupaza, M., Gore, T. O., Mukanangana, F., & Makurah, E. (2015). Small scale fisheries as

a livelihood

strategy: A case study of Lake Chivero in Zimbabwe. *Global Journal of Interdisciplinary Social*

Kupaza, M., Gore, T. O., Mukanangana, F., & Makurah, E. (2015). Small scale fisheries as a livelihood strategy: A case study of Lake Chivero in Zimbabwe. *Global Journal of Interdisciplinary Social Sciences*, 4(3), 141–147.

Leal, D. R. (1998). Community-Run Fisheries: Avoiding the “Tragedy of the Commons.” *Population and Environment*, 19(3), 225–245. <http://www.jstor.org/stable/27503580>

Lockwood, M., Davidson, J., Curtis, A., Stratford, E., & Griffith, R. (2010). Governance principles for natural resource management. *Society and Natural Resources* 23(10), 986–1001.

Lunn, K., E., & Dearden, P. (2006). Monitoring small-scale marine fisheries: An example from Thailand’s Ko Chang Archipelago. *Fisheries Research* 77 (1), 60–71. doi:10.1016/j.fishres.2005.08.009

Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research* (4th ed.). Thousand Oaks, CA: Sage.

Mathew, S. (2003). Small-scale fisheries perspectives on an ecosystem-based approach to fisheries management. *Responsible Fisheries in the Marine Ecosystem*, 47–63.

Mathew, S. (2001). Small-scale fisheries perspectives on an ecosystem-based approach to fisheries management International Collective in Support of Fishworkers. Reykjavik, Iceland.

Nielsen, J.R. (1996). User-group participation in Danish fishery management. In *Fisheries resource utilization and policy: Proceedings of the World Fisheries Congress, Theme 2*. Meyer, R.M., C. Zhang, et al., editors. Science Publishers, Inc.: Lebanon, USA. Pages 304-316.

McClanahan, T.,R. & Castilla, J.C. (eds) (2007) *Fisheries management: Progress towards sustainability*. Blackwell Press, London.

McConney, P. & Anthony, C. (2010). Managing small-scale fisheries: Moving towards people-centered perspectives. *Handbook of Marine Fisheries Conservation and Managment*. Oxford University Press, New York, 532–46.

Mikalsen, K.H., Hernes, H.-K., Jentoft, S. (2007). Leaning on user-groups: The role of civil society in fisheries governance. *Marine Policy*, 31(2), 201–209.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage Publications.

Ministry of Natural Resources, “A Review of the Somali Fisheries Law (Law No. 23 of November 30, 1985), in Accordance with Article 79, Paragraph (d) of the Federal Constitution of Somalia” (Mogadishu, Somalia: Federal Republic of Somalia, 2014).

- Mohamed, M. & Hirzi, M. (2005). Feasibility report on the fisheries sector in Puntland. Nairobi: OTP/UNDP Somalia.
- Morrison, A. K. (2004). Input and output controls in fisheries management: a plea for more consistency in terminology. *Fisheries Management and Ecology* 11(6), 411-413
- Musse, G.H. & Mahamud, H.T. (1999). In Assessment & Monitoring of Marine System. S. Lokman, M.S.N. Azhar, M.S. Nasir & M.A. Borowitzka (eds.), Universiti Putra Malaysia Terengganu, Kuala Terengganu, Malaysia (p 255 - 264).
- Napier, V. R., Branch, G. M., & Harris, J. M. (2005). Evaluating conditions for successful co-management of subsistence fisheries in KwaZulu-Natal, South Africa. *Environmental Conservation*, 32(2), 165–177. <http://www.jstor.org/stable/44520827>
- Neuman, W.L. (2011). *Social research methods: Qualitative and quantitative approaches*. 7th Edition, Pearson, Boston.
- Njock, J.,C., & Westlund, L. (2010). Migration, resource management and global change: experience from fishing communities in West and Central Africa. *Marine Policy* 34 (4), 752–760.
- Nickerson-Tietze, D. J. (2000). Scientific Characterization and Monitoring: Its Application to Integrated Coastal Management in Malaysia. *Ecological Applications*, 10(2), 386–396. <https://doi.org/10.2307/2641100>
- Nunan, F., Cepić, D., Yongo, E., Saleh, M., Mbilingi, B., Odongkara, K., Onyango, P., Mlahagwa, E., & Owili, M. (2018). Compliance, corruption and co-management: how corruption fuels illegalities and undermines the legitimacy of fisheries co-management. *International Journal of the Commons*, 12 (2), 58–79. <https://doi.org/10.18352/ijc.827>
- Omar, J.A. , Mohamed, A.A., & Bambale, S.A. (2019). Impacts of illegal, unreported and unregulated (IUU) fishing on developing countries: The case of Somalia. *Asian Research Journal of Arts & Social Science*, 9(4), 1-15.
- Olomola, A. (2008). Sources and resolution of conflicts in Nigerian artisanal fisheries. *Society and Natural Resources* 11 (2), 121-135. DOI:10.1080/08941929809381067
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science* 325 (5939), 419–22. doi:10.1126/science.1172133
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press, Cambridge, UK.
- Pereira, T. (2010). Overview of inshore fisheries and associated activities in Mozambique with a special emphasis on small- scale fisheries. [NORAD Report 4/2014]. Norwegian Agency for Development Organization. Oslo, Norway.
- Person, L. & Karlsson, I. (2019, December 4). Retrieved from <https://www.rethink.earth/finding->

somalias-missing-fisheries/

Philippe, J. (2020, April 2020). Senegalese fisheries stakeholders protest against its government intention to issue 54 fishing licenses to Chinese and Turkish vessels. Coalition for Fair Fisheries Arrangements (CFFA). Retrieved from <https://www.cffacape.org/news-blog/senegalese-civil-society-protests-against-its-government-intention-to-issue-fishing-licenses-to-54-chinese-and-turkish-vessels>

Pinkerton, E. W., & Weinstein, M. (1995). Fisheries that work. Sustainability through community-based management, 199. Vancouver, B.C.: David Suzuki Foundation.

Platteau, J. P. (1996). The evolution theory of land rights as applied to Sub-Saharan Africa: A critical assessment. *Development and Change* 27(1), 29-86.

Plummer, R., Crona, B., Armitage, D., R., Olsson, P., Tengö, M., & Yudina, O. (2012). Adaptive co-management: a systematic review and analysis. *Ecology and Society* 17(3), 11. <http://dx.doi.org/10.5751/ES-04952-170311>

Plummer, R., Fitzgibbon, J. (2004). Co-management of natural resources: A proposed framework. *Environmental Management* 33 (1), 876–885. <https://doi.org/10.1007/s00267-003-3038-y>

Pomeroy, R.S., & Andrew, N.L. (2011). Small-scale fisheries management: frameworks and approaches for the developing world.

Pomeroy, R.S., Rivera-Guieb, R. (2006). Fishery co-management: A practical hand-book. International Development Research Centre, Ottawa.

Pomeroy, R. S., Katon, B. M. & I. Harkes. (2001). Conditions affecting the success of fisheries co-management: Lessons from Asia. *Marine Policy* 25 (3), 197–208.

Pomeroy, R. S., & Berkes, F. (1997). Two to tango: the role of government in fisheries comanagement. *Marine policy*, 21(5), 465-480. [https://doi.org/10.1016/S0308-597X\(97\)00017-](https://doi.org/10.1016/S0308-597X(97)00017-)

Pramod, G. (2018). Somalia-Country report, 7 pages, In: Policing the open seas: Global assessment of fisheries monitoring control and surveillance in 84 countries, IUU Risk Intelligence – [Policy Report 1, Canada, 830 pages]

Punch, K.F. (1998). *Introduction to social research: Quantitative and qualitative approaches*. Sage, London.

Raemaekers, S. (2009). Rethinking South Africa's inshore fisheries management Paradigm and governance approach: Evidence from the Eastern Cape. *PhD Thesis, Department of Ichthyology and Fisheries Science*, Rhodes University, Grahamstown, South Africa, 211 pp.

Ratner, B.D., Asgard, B., & Allison, E.H. (2014). Fishing for justice: human rights, development and fisheries sector reform. *Global Environmental Change* 27, 120–130. <https://doi.org/10.1016/j.gloenvcha.2014.05.006>

Roberts, M. P., Burroughs, L. C., & Moge, A. O. (2019). The potential for fisheries co-management in the Somali region. *One Earth Future: Secure Fisheries*.

Robinson, O. C. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology* 11(1), 25-41.

Schreiber, M.A., Halliday, A., (2013). Uncommon among the commons? Disentangling the sustainability of the Peruvian anchovy fishery. *Ecology and Society* 18 (2), 12.

Salafsky N, Wollenberg E (2000) Linking livelihoods and conservation: a conceptual framework and scale for assessing the integration of human needs and biodiversity. *World Development* (28) 1421–1438. [http://dx.doi.org/10.1016/S0305-750X\(00\)00031-0](http://dx.doi.org/10.1016/S0305-750X(00)00031-0)

Salomon, A.K., Gaichas, S.K., Jensen, O.P. et al. (2011) Bridging the divide between fisheries and marine conservation science. *Bulletin of Marine Science* 87, 251–274.

SecureFisheries. (2019). A day at Lido Beach: How Somali youth are leading the way in fisheries. Secure Fisheries: Broomfield, USA. Retrieved from <https://www.securefisheries.org/news/lido-beach-somali-youth-fisheries>

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. Teachers College Press, New York.

Schlager, E. (2004). Common-pool resource theory (R. F. Durant, D. J. Fiorino, & R. O’Leary, Eds.). In (pp. 145–175). Retrieved from <http://hdl.handle.net/10535/5648>

Schlager, E., & Ostrom, E. (1992). Property-Rights Regimes and Natural Resources: A Conceptual Analysis. *Land Economics*, 68(3), 249-262. <https://doi.org/10.2307/3146375>

Standing, A. (2011). Making transparency work in Africa’s marine fisheries. (U4 Issue, October 2011: No. 11). U4 Anti-Corruption Resource Centre, CMI, Bergen, Norway.

Stobutzki, I., C., Geronimo, T. S., & Len, R. G. (2006). Key issues in coastal fisheries in South and Southeast Asia, outcomes of a regional initiative. *Fisheries Research* 78 (2-3), 109–18. doi:10.1016/j.fishres.2006.02.002.

Sowman, M. (2011). New Perspectives in small-scale fisheries management: Challenges and prospects for implementation in South Africa. *African Journal of Marine Science* 33 (2) 297-311.

Swartz, W., Sala, E., Tracey, S., Watson, R., Pauly, D. and Sandin, S.A. (2010). The spatial expansion and ecological footprint of fisheries (1950 to present). *PLoS ONE* 5(12), e15143. <https://doi.org/10.1371/journal.pone.0015143>.

Swyngedouw, E.(2005). Governance innovation and the citizen: the Janus face of governance-beyond-the-state. *Urban Studies* 42 (11), 1991–2006.

Tieze, U, Groenewold, G. & Marcoux, A. (2000). Demographic change in coastal fishing communities and its implications for the coastal environment. Rome: FAO.

Trans-Africa Consultancy Services (TACS) (2015). Improving Development and Management of Somalia's Marine Fisheries and Controlling Illegal, Unreported and Unregulated (IUU) Fishing. Retrieved from https://www.www.crc.uri.edu/download/SOM14_polpaper.pdf

Unruh, J. D. (2018). Mogadishu City. In Encyclopedia of Urban Cultures. Retrieved from [https://www.researchgate.net/publication/327041276 Mogadishu City](https://www.researchgate.net/publication/327041276_Mogadishu_City).

Viridin, J., Kobayashi, M., Akester, S., Vegh, T., & Cunningham, S. (2019). West Africa's coastal bottom trawl fishery: Initial examination of a trade in fishing services. *Marine Policy* 100, 288-297.

Wade, R. (1988). *Village republics: Economic conditions for collective action in South India*. San Francisco, CA: Institute for Contemporary Studies.

Wallner-Hahn, S., Molander, F., Gallardo, G., Villasante, S., Eklöf, J. S., Jiddawi, N. S., & de la Torre-Castro, M. (2016). Destructive gear use in a tropical fishery: Institutional factors influencing the willingness-and capacity to change. *Marine Policy*, 72, 199–210. <https://doi.org/10.1016/j.marpol.2016.07.001>

Walmsley, S., Purvis, J., & Ninnes, C. (2006). The role of small-scale fisheries management in the poverty reduction strategies in the Western Indian Ocean region. *Ocean & Coastal Management*, 49(2006), 812–833. doi:10.1016/j.ocecoaman.2006.08.006

Ward, T. & Hegerl, E. (2013). *Marine protected areas in ecosystem-based management of fisheries*. Commonwealth of Australia: Parks Australia South.

Welman, C., Kruger, F., & Mitchell, B. (2005). *Research methodology*. Cape Town: Oxford University Press.

Williamson, O. (1985). *The economic institutions of capitalism*. The Free Press, New York.

Wilson, D. C. (2003). Fisheries co-management and the knowledge base for management decisions. In *The fisheries co-management experience: Accomplishments, challenges and prospects*, eds. D. C. Wilson, J. R. Nielsen, and P. Degnol, 266–279. Boston: Kluwer Academic.

Worm, B. & Branch, T.A. (2012). The future of fish. *Trends in Ecology and Evolution* 27, 594–599.

Worm, B., Barbier, E.B., Beaumont, N. et al. (2006). Impacts of biodiversity loss on ocean ecosystem services. *Science* 314, 789–790.

Yandle, T. (2008). The promise and perils of building a co-management regime: an institutional assessment of New Zealand fisheries management between 1999 and 2005. *Marine Policy* 32(1) 132–141.

Yin, R. K. (2018). *Case study research design and methods* (6th Ed.). Thousand Oaks, CA: Sage Publishing.

Yu, H. (1991). Marine fishery management in PR China. *Marine Policy*, 15(1), 23-32.

**Appendix III
Interview Guide**

Intro
Welcome
Explanation of the project
Permission for audio recording (oral at beginning of the recording)

#	Interview Questions
1.	<p>What do you think of the general situation of small-scale fishery resources in Mogadishu and how are they used?</p> <ul style="list-style-type: none"> - Is there proper understanding of the user and resource boundaries around the SSF in relation to who has access to the resources (including the legal provisions) - Are there conflicts over access, both Mogadishu fishermen and external fishers - Overlap between institutional arrangements and resources systems
2.	<p>Who sets the user/resource boundaries, rules, sanctions and access right of MSSF?</p> <ul style="list-style-type: none"> - Leadership, corruption, conflicts and familiarity with changing external environments - Important functions of SSF formal management authorities and duties of fish cooperatives. - How do you describe the current governance style in the area (are cooperatives independent to set their own rules or there is complete government control).
3.	<p>What are the main purposes of SSF in the Mogadishu?</p> <ul style="list-style-type: none"> - Can you describe the general level of dependence upon the SSF? - Fairness in participation of the fishermen development activities or allocation of resources.
4.	<p>What are the functions of government authorities in protecting the SSF?</p> <ul style="list-style-type: none"> - In reference to locally established rules of access and management - Deterrent measures and sanctions for SSF exploitation - The procedures of implementation and institutional arrangements - Local levels of assigning the process, provisions and general self-governance - What do you think about stakeholders' participation or attitude in SSF management?
5.	<p>What are the measures instituted by cooperatives for enhancing the SSF?</p> <ul style="list-style-type: none"> - Conflict management procedures capacity by relating with past successful management experience

	<ul style="list-style-type: none"> - Degree of sanctions and fishermen's participation in conservation efforts - Accountability in abiding local rules
6.	<p>Who serves the essential role in the development of the sector and what is the level of participation in decision making processes?</p> <ul style="list-style-type: none"> - Decision making is independent from external governance - Fisherfolk's involvement into the decision making activities - Accountability of government concerned authorities towards the fishermen
7.	<p>Could you please describe in as much detail as possible, the greatest threats or main constraints of SSF governance?</p> <ul style="list-style-type: none"> - Any suggestions or recommendations to tackle the challenges facing SSF
8.	<p>What are the roles of NGOs, project agencies in supporting local SSF management systems?</p>
9.	<p>What are the counter measures employed by the fishermen in the event of difficulties?</p> <ul style="list-style-type: none"> - Change in conduct and management
10.	<p>Would you please describe the main fishing activities employed in the area, ie fishing methods/main fish caught and boat types?</p> <ul style="list-style-type: none"> - How do you describe the productivity of the sector in reference with the current status and historical understanding?